DOCUMENT RESUME

ED 273 803 CE 045 015

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TITLE A Comparison of Commercial Vocational Evaluation Systems (Second Edition).
INSTITUTION Wisconsin Univ.-Stout, Menomonie. Stout Vocational Rehabilitation Inst.
SPONS AGENCY Rehabilitation Services Administration (ED), Washington, DC.
PUB DATE 82
NOTE 139p.; For earlier editions, see ED 186 738-739.
AVAILABLE FROM Materials Development Center, Stout Vocational Rehabilitation Institute, Menomonie, WI 54751 ($12.50).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Adult Education; Comparative Analysis; Diagnostic Tests; *Disabilities; *Disadvantaged; Postsecondary Education; *Program Descriptions; Secondary Education; *Test Selection; Vocational Education; *Vocational Evaluation; Work Sample Tests

ABSTRACT

This guide for potential purchasers of vocational evaluation systems begins with an edited reprint of an article on how to select a commercial vocational evaluation system. Section 2 explains the 15 major points contained in the outline of each system. They are development, organization, physical aspects, work evaluation process, administration, scoring and norms, observation of clients, reporting, utility, training in the system, technical considerations, reviewer's summary and comments, address, cost, and references. Section 3 is a table presenting a very brief comparison of the systems on the first 10 points in the outline. The fourth section contains a more detailed description of 17 vocational evaluation systems: Career Evaluation System, McCarron-Dial Work Evaluation System, Micro-TOWER, Occupational Assessment/Evaluation System, Philadelphia Jewish Employment and Vocational Service Work Sample System, Prep Work Sample, Pre-Vocational Readiness Battery, System for Assessment and Group Evaluation, Talent Assessment Programs, The TOWER System, Valpar Component Work Sample Series, Vocational Evaluation System by Singer, Vocational Information and Evaluation Work Samples, Vocational Interest Temperament and Aptitude System, Vocational Skills Assessment and Development Program, Wide Range Employability Sample Test, and Work Skill Development Package. (YLB)

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A Comparison of Commercial Vocational Evaluation Systems (Second Edition)

Karl F. Botterbusch, Ph.D.

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This publication was funded in part by a grant from the REHABILITATION SERVICES ADMINISTRATION, U.S. DEPARTMENT OF EDUCATION, WASHINGTON, D.C.

Introduction

This monograph will be the fourth MDC publication since 1976 offering an objective comparison of commercial vocational evaluation systems. Beginning in 1976 with A Comparison of Seven Vocational Evaluation Systems, continuing with A Comparison of Four Vocational Evaluation Systems in 1977 and, most recently, the 1980 A Comparison of Commercial Vocational Evaluation Systems, MDC has sought to provide vocational evaluators, special education teachers, vocational educators, manpower trainees, corrections personnel and program administrators in many human service fields with accurate and detailed information on widely available commercial vocational evaluation systems.

While it has only been two years since the 1980 Comparisons publication, this revised edition is intended to reflect major changes both inside and outside the industry during this time period. Within the evaluation system industry there have been two significant changes. The first is the development of three new systems: Occupational Assessment/Evaluation Systems (OA/ES), the System for Assessment and Group Evaluation (SAGE), and the Work Skill Development Package (WSD). The first two of these three new systems are designed to give a complete aptitude assessment in a short period of time. At the other end of the spectrum is the WSD; this is intended to be a training and evaluation tool and is designed for teaching basic skills over a comparatively long time span. The second innovation has been major changes in the "software" of several systems. New manuals have been written for the TAP and Career Evaluation System (i.e., Hester). A computerized report format is now available for the McCarron-Dial and the Career Evaluation System printout has been revised.

Some major changes have occurred outside of the industry in the last few years which have changed the use of vocational evaluation systems dramatically. First, due mostly to reductions in rehabilitation funding, many state vocational rehabilitation agencies have reduced the amount of time allowed for vocational evaluation from two to three weeks to one week or less. Evaluators must cope with the problem of obtaining accurate information about clients in shorter time periods. One solution to this problem is to use tools which give large amounts of data in a short period of time. Isolated trait work samples, simulations, and psychological testing offer potential solutions to these problems. Second, also due to funding reductions, the strategy of many rehabilitation professionals has changed from one of a lengthy vocational evaluation, usually followed by work adjustment and skill training prior to placement to one of direct job placement after a short evaluation period. This forces the evaluator to deal less with the client's ultimate potential and more with direct transfer of skills and aptitude to currently available jobs.

Third, and happening over a longer period of time, has been the continued use of vocational evaluation methods and techniques into areas outside of the state-federal vocational rehabilitation system. The expansion into education programs in particular is creating an entire new area which will challenge the skills and talents of the teacher and the evaluator. Finally, there has been the significant increase in the number of people involved in private for profit rehabilitation. Whether dealing with litigation, case

management, training or placement, these companies need accurate, fast methods of assessing client potential.

Based on changes within the evaluation system industry and changes outside that industry, there are several current trends that most likely will become stronger in the future. For both nonprofit and profit vocational rehabilitation programs, there will be a continued emphasis on shorter time periods for vocational evaluation. Indeed, as this occurs, professionals will have to distinguish between a traditional evaluation model and a newer assessment model. The advent of inexpensive computer technology over the past few years has already resulted in three evaluation systems (i.e., Career Evaluation System, SAGE, OA/ES) that have person-job matching systems based more or less on the Dictionary of Occupational Titles. This trend will most certainly continue as evaluators find that many of the tedious tasks of searching can be given to a machine. Finally, there is the possibility the job sample and simulated work samples that have been the standard for about 15 years will be to a degree replaced by isolated trait work samples and psychometric instruments.

There are two problems that vocational evaluators must face with regard to commercial evaluation systems. The first is that to some people, both in and out of the profession, the term "vocational evaluation" has come to mean "work samples" in general and "commercial work samples" in particular. While this is a problem that can only be solved by evaluators themselves, it must be stressed to the readers of this publication that there are other methods of assessing persons besides commercial work samples. The second problem is one of technical standards. While some development of norms, reliability, and validity have occurred in the last 14 years, most work sample systems are technically inadequate. The evaluator who would carefully read the administration and technical manuals before selecting a new test would often be the same person who would select a work sample system based on "face" validity and on "norms" developed on limited or nonexistent populations. While the developers of these systems are at fault, it is the evaluator who is ultimately responsible to his clients for the selection of inadequate assessment tools.

In preparing this comparison, manuals, technical reports, and related publications were used to obtain information about each system. It is hoped that this publication will be used as a guide for potential purchasers so that they can examine each system in light of their own needs. Facilities considering the purchase of any system should not only talk with vocational evaluators in facilities who are using a system, but should also see the system in action prior to making a final decision.

This publication contains four sections. The first is an edited reprint of an article on how to select a commercial vocational evaluation system (Botterbusch and Sax, 1977); this article is based on the introduction to the earlier comparison publications. The second is an explanation of the 15 major points contained in the outline. The third section is a table which presents a very brief comparison of the systems on the first ten points in the outline (points 12 through 15 are not presented because of redundancy or not being appropriate to summarize). The fourth section contains a more detailed description of each vocational evaluation system, including reviewer's comments, address, cost, and references.

Two additional comments are necessary. First, because most systems are constantly being revised, expanded, and updated, the potential user should contact the manufacturers for the most recent information. Second, for those who desire additional information, the Materials Development Center has a sound/slide presentation on most of the vocational evaluation systems described in this publication. (Those interested in the sound/slide presentations should write MDC for a brochure describing this series.)

I would like to thank Ms. Arlyn Treadwell who typed this document. Finally, I would also like to thank all of the commercial developers who have willingly provided manuals, technical reports, forms, etc.

Karl F. Botterbusch, Ph.D.
October, 1982

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Some Considerations for the Selection of a Commercial Vocational Evaluation System

Over the years many people have contacted the MDC for advice concerning the most appropriate vocational evaluation system to purchase for their facility. This section was prepared in response to these requests and will outline some of the factors to be considered prior to purchasing a commercial vocational evaluation system. The evaluator has at his disposal many tools for assessing client potential (Task Force No. 2, 1975). These tools fall within one of the following four categories:

1. On-the-Job Evaluations - These are situations in which the client is assessed in one or more of a variety of real work situations including: job site situations in industry, trial training evaluation in a training program, and simulated job stations within the facility.

2. Sheltered Employment - This offers the evaluator an opportunity for assessing the client under working conditions that should be similar to those found in competitive employment.

3. Work Samples - There are four types of work samples according to their degree of correspondence with actual jobs: actual job samples, simulated job samples, cluster trait samples, and single trait samples.

4. Psychological Tests - These include an almost endless variety of paper-and-pencil and apparatus techniques for measuring traits, abilities, and related characteristics of an individual.

Faced with the need to equip and administer a vocational evaluation unit, many untrained and inexperienced evaluators feel that the purchase of a commercial evaluation battery will solve their problems. The evaluator should analyze a number of factors in deciding how to equip the evaluation unit and then carefully investigate all the tools listed in the above categories to determine the ones that will provide him with the best methods to adequately assess his clients.

The first area of consideration is the relationship between the community and the vocational evaluation unit. The evaluator must carefully investigate the range and type of jobs that are available in the local labor market. Thus, a small rural facility or a facility in a one industry community will have a narrower range of job evaluation stations than a facility in an urban area. Labor market information can be obtained through vocational surveys, local employment offices and agencies, and client placement records. Once potential employment opportunities have been determined, intelligent decisions can be made on what type of evaluation tools can best assess these demands.

Because the evaluation outcomes may not result in immediate placement, it is also necessary to investigate the training opportunities available for clients and these should also be reflected in the selection of evaluation tools. A client's range of occupations widens and his chances for upward mobility are

frequently increased as a result of training. The presence of an area vocational-technical school, private trade and business schools, on-the-job training programs, apprenticeship programs, and even higher education should be reflected in the evaluation unit. Vocational evaluation techniques covering a wide variety of occupational areas and assessing the full range of client aptitudes and interests are needed if the facility is in an area where many employment and training opportunities are available.

The second consideration is the client population. Some evaluation units must be capable of serving clients with all types of mental, physical, psychological, and cultural disabilities. Other facilities restrict themselves to serving either a single disability or a small number of disabilities. A facility dealing with many types of handicaps would generally need to have techniques covering the entire range of occupational areas and skill levels within these areas. A facility providing services to a single disability group could safely limit its evaluation areas. For example, a facility serving only mentally retarded clients could realistically avoid evaluation for occupations that require a great deal of formalized training or higher education. Some systems claim to have been designed specifically for a particular level of client functioning. When selecting evaluation tools, keep in mind the type of clients served since it would be a waste of time to assess a client for a job he could not fill because of his handicap. At the present time, most commercial vocational evaluation systems are designed for persons who can see and hear and most contain no special instructions or modifications for the blind or deaf. The evaluator should be aware that he frequently will have to make modifications in commercial work samples so that they meet the special needs of his clients (Botterbusch, 1976; Dickson, 1976). In summary, if an evaluator is considering a commercial evaluation battery, he/she should check the battery against the needs of the client population served and then decide: (1) whether the system is designed for the target disability group(s), or (2) whether other evaluation techniques would be more appropriate.

The third area to be considered is the purpose of evaluation. Although all vocational evaluation techniques should provide career information, a particular technique may either emphasize occupational information by providing a hands-on experience or it may emphasize the assessment of present skills and aptitudes without relating it to career information. Some systems attempt to provide a thorough evaluation of the client's aptitudes and work behaviors; others provide occupational information and experience, often at the expense of a thorough ability assessment. The evaluator should check the final report format to determine exactly what information it contains; this goes a long way in determining the purpose of a particular system. The evaluator must first decide what needs to be included in these areas and then attempt to find or develop the evaluation tools that best fit the client's needs. A system should never be purchased to "fit in somewhere."

The fourth area of concern is perhaps the most basic--why even purchase a commercial evaluation system at all? All of the systems are relatively expensive; some are very expensive. None will probably meet the individual needs of a facility in terms of community jobs and training, client populations, and purpose of evaluation. A facility could develop its own evaluation unit based on job or work samples taken from local industry. This would make evaluation very realistic for the client, staff, and even for a

potential employer. Additional work samples could be developed from existing subcontracts in the workshop. This method not only will assess the areas in which the client has his maximum functions and interests, but also the areas of the shop that would best fit the client. In addition, the client would receive training on the work performed in the workshop. Then, when the client is transferred from the evaluation unit, he or she will be familiar with the subcontract, which should alleviate the need for the supervisor to train the client from "scratch."

The development of a work sample is expensive in terms of staff time. In most facilities, staff are hired to provide direct client service and to have a staff person doing developmental work reduces the time available for working with clients. Few evaluation units can afford the luxury of developmental time for staff persons. Besides the time element, development of evaluation tools demands a working knowledge of the skills required to perform jobs and to analyze tasks, of form and report design, of behavior analysis, of statistics for norms, and of industrial engineering techniques. Although these skills are becoming more and more widespread among evaluators, there are still many facilities that lack persons with these competencies. The lack of developmental time coupled with the inexperience of some evaluators is partly responsible for the increased use of commercial evaluation systems. The purchase of these systems as a matter of convenience does not necessarily imply that the systems are not useful to the evaluator.

The first decision is whether the evaluation unit is meeting client needs in terms of accurate assessment for available jobs and/or training. If needs are not being met, the second decision becomes a question of what areas of job assessment are needed for the evaluation unit. After these needs are known, a thorough review of the different evaluation techniques, commercial vocational evaluation batteries (or parts of these batteries), and other available resources should be made to determine how to best meet these needs. However, it is a common practice for many persons to want to buy a system that will give all the answers. Such a system simply does not exist. There is also the possibility of carefully selecting individual work samples from several systems and combining these into a unified system specific to the needs of the facility. To have appropriate evaluaItion stations, there has to be a great deal of analysis of what is to be accomplished during evaluation, the available jobs and training opportunities, the types of clients with whom you are working, and the best way to accomplish the goals of your facility. This analysis is absolutely necessary before a workable system can be developed.

The preceding points should only be used as general guidelines because each facility is unique. A critical factor in purchasing a system should be based on the knowledge of what is needed and not on the cost or attractiveness of the hardware. Usually, no one system will meet all the needs of a facility and the purchased system should be integrated with facility constructed devices, other evaluation systems, on-the-job evaluation, and psychological tests. MDC suggests that a facility obtain as much accurate information as possible about a system prior to purchase. Some sources of information are:

1. The information contained in this present publication.

2. MDC's sound/slide presentations on most evaluation systems. A brochure listing these programs is available from MDC.

3. Talk with the evaluators in other facilities who are using the system being considered and see what they think of it.

4. If possible, try out the system yourself with clients in another facility.

5. Write the system's manufacturer and obtain current information.

In conclusion, MDC cannot recommend what commercial system(s) will be best for a facility because selecting the appropriate system is (or should be) based on an accurate, realistic assessment of the unique needs of each facility.

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Dickson, M. B., Work sample evaluation of blind clients: Criteria for administration and development. Menomonie, Wisconsin: Materials Development Center, 1976. (Available from the MDC)

Task Force No. 2, The tools of vocational evaluation. Vocational Evaluation and Work Adjustment Bulletin, 1975, 8(3), Part I, special edition, 49-64. The three publications of the VEWAA Research Project have been reprinted by MDC into one volume (Reprint No. 12) and is available from MDC.

Vocational Evaluation System Outline

1. Development

   a. Sponsor - The organization that originally funded or financed the development of the vocational evaluation system.

   b. Target Group - What specific populations, such as disadvantaged, mentally retarded, or physically handicapped, was the system designed to serve?

   c. Basis of the System - What theoretical or organizational principle, such as the Dictionary of Occupational Titles, was used as a basis for development?

2. Organization

   a. Name and Number of Work Samples - How many work samples does the system contain? What are the names of the work samples?

   b. Grouping of Work Samples - What is the arrangement of the individual work samples within the system? Are several work samples grouped in a hierarchy or is each work sample independent?

   c. Manual - What are the organization and contents of the manual(s)? Does it provide all the details that the evaluator needs to know in order to use the system?

3. Physical Aspects

   a. Packaging of the Work Samples - How are work samples packaged for sale? Does each work sample "stand alone" or must tools and equipment be shared with other work samples?

   b. Durability - How durable are the tools and equipment in the system? If the system uses audiovisual components, how prone to breakdown are they?

   c. Expendable Supplies - How much and what type of expendable supplies (e.g., wood, paper, wire) are needed per client?

   d. Replacement - To what degree can supplies and materials (e.g., tools, nuts and bolts, colored chips) be obtained locally or must they be ordered from the developer?

4. Work Evaluation Process

   a. Preliminary Screening - What information is needed or what decisions must be made before a client can be administered the system?

   b. Sequence of Work Sample Administration - In what order are the work samples administered?

c. Client Involvement - To what extent is the client informed of his/her progress during the course of administration? What type, if any, of formal feedback is given to the client after the entire battery has been administered? What type of contact does the client have with the evaluator?

d. Evaluation Setting - Does the general environment attempt to simulate industry, produce a classroom atmosphere, or resemble a formal testing situation?

e. Time to Complete the Entire System - How long does it take the average client to complete all the work samples in the system?

5. Administration

a. Procedures - Are the purposes of each work sample, materials needed, layout, and general instructions clearly given so that there is little chance of misinterpretation?

b. Method of Instruction Giving - How does the client receive his/her instructions for the work samples in the system? For example: oral demonstration, written instructions, or audiovisual?

c. Separation of Learning/Performance - Does the work sample have separate practice (learning) and performance periods? Are there definite criteria (e.g., three correct assemblies; the lines drawn within ± 1/16 inch) that must be met before the client can progress from a practice period to a performance period.

d. Providing Assistance to the Client - What procedures are there for giving extra or additional instructions, demonstrations or feedback after the period of initial instructions?

e. Repeating Work Samples - What provisions are made for the re-administration of some work samples and what is the purpose of re-administration?

6. Scoring and Norms

a. Timing - What are the procedures for timing the client?

b. Timing Interval - When does the evaluator start timing the client and when does he stop? Are there specific cut-offs or does the client continue until the work sample is completed?

c. Time Norms - What is the procedure for reporting the time score for each work sample?

d. Error Scoring - What procedures, such as a random check of some parts, general rating of overall quality, or a comparison to standards, are used for determining errors?

e. Scoring Aids - What use is made of overlays, templates, models, etc., to make scoring more accurate and easier for the evaluator?

f. Quality Norms - What procedures are used for reporting the number of errors, quality ratings, etc., for each work sample? What, if any, type of a rating system is used?

g. Emphasis in Scoring - Does the system emphasize time or errors in the scoring process or are both given equal weight?

7. Observation of Clients

a. Work Performance - Are work performance factors (e.g., fine finger dexterity, color perception) listed for the system and are specific work performance factors given for each work sample?

b. Work Behaviors - Are work behaviors (e.g., ability to follow instructions, communication with supervisors) defined for the system and are specific work behaviors to be observed for each work sample?

c. Recording System - What procedures does the system have for the recording, describing, and rating of observed work performance and work behaviors?

d. Frequency of Observation - How often and to what extent is the evaluator to observe and record client behavior?

8. Reporting

a. Forms - What forms for recording time and quality, work performance, work behavior, etc., are used for each work sample in the system?

b. Final Report Format - What information is included in the final report and what type of format (e.g., rating scales, free narration) is used to present the information? Is a final report format and/or example given in the work sample manual?

9. Utility

a. Vocational Exploration - Does the system provide experiences that the client can readily relate to real jobs?

b. Vocational Recommendations - Are training and job recommendations specific or general? How are they related to the DOT or other job classification systems? Can extended evaluation work adjustment, etc., be recommended as a result of this system?

c. Counselor Utilization - Can the system provide the counselor or referring agency with useful information and to what extent is the counselor involved in the process?

10. Training in the System

a. Training Required - Is formal training required before the system is sold?

b. Training Available - Is formal training available? Where is it available?

c. Duration - How much time is required for training?

d. Follow-up - Is technical assistance available after purchase and training?

11. Technical Considerations

a. Norm Base - On what types of populations (e.g., client, employed workers, general populations) was the system normed, and are these norm groups clearly defined? Are norm groups of adequate size for practical use? Are predetermined time standards, such as Methods-Time-Measurement, used?

b. Reliability - What empirical evidence is there to demonstrate that the system and its component work samples gives reliable or consistent results? Are the research methods, sample sizes, etc., described in enough detail to permit the user to judge the meaningfulness of any data?

c. Validity - What content, construct or empirical validity data is available to indicate that the system really does what it claims, such as make more realistic choices, job and/or training success, etc.? Are research methods, sample sizes, etc., described in enough detail to permit the user to judge the meaningfulness of any data?

12. Reviewer's Summary and Comments - This contains what the reviewer considers to be the major advantages and disadvantages of the system. Also included are any unique points about each system and some ideas for its use.

13. Address - The address of the manufacturer is given for those wishing to obtain additional information.

14. Cost - The present cost of the system and what materials and services are included in the price.

15. References - All generally available references are given; those not available from the MDC Loan Service are indicated by an asterisk (*).

Outline	Career Hester	McCarron-Dial	Micro-TOWER
1. Development			
a. Sponsor	Edward Hester	McCarron & Dial	ICD Rehabilitation & Research Center
b. Target Group	all intelligence levels, physically disabled normal populations	mentally retarded, mentally ill, learning disabilities	general rehabilitation population
c. Basis of System	DOT	5 neuropsychological factors	DOT
2. Organization			
a. Number of Work Samples	39 test scores	17	13
b. Grouping of Work Samples	each independent	grouped into 5 factors	5 groups of general aptitudes
c. Manual	contains all system details; computer printed	4 manuals; very detailed	general manual, separate manual for each work sample contains all system details
3. Physical Aspects			
a. Packaging of Work Samples	some individually packaged	5 separate briefcase-like kits	each work sample packaged separately
b. Durability	estimate fairly durable	not applicable	durable
c. Expendable Supplies	staples and paper	no consumable materials used	wire only
d. Replacement	supplies locally, parts from distributor	must be ordered from manufacturer	all forms locally if desired
4. Work Evaluation Process			
a. Preliminary Screening	not required	client interview	not required
b. Sequence of Administration	no specified order	in order by factors	discretion of evaluator
c. Client Involvement	little during testing	encouraged	extensive client involvement
d. Evaluation Setting	formal testing setting	formal testing and workshop	combination of formal testing and counseling
e. Time to Complete Entire System	5 hours	2 weeks recommended	15-20 hours

OA/ES	JEVS	Prep	Valpar #17
Individualized Rehabilitation Programs	U.S. Department of Labor	Prep, Inc.	Valpar International
industrially disabled	initially for disadvantaged	manpower, secondary education, and special needs	mentally retarded
U.S. Labor Dept. Publications	DOT	15 career systems of USOE	not specified
11 tests; 9 work samples	28	27	11 assessment techniques using different formats
by aptitude, interest, physical capacity scale and work sample	12 Work Groups	each is independent	5 areas
3 manuals, omits many system details	contains all system details	general manual and separate manual for each work sample, contains all details	general manual; separate manual for each area; contains all details
packaged as a group	each work sample packaged separately	each separately packaged in a portable container	each of the 5 areas packaged separately
estimate durable	very durable	durable	very durable
forms, wire and solder	paper, fabric, string	wood, sheet metal, wire, etc.	no consumable materials
tests from publishers; parts locally	most purchased locally	supplies locally	forms ordered from developer or locally reproduced
not required	not required	not required	not specified
no specified order	progressive from least to most complex	any order	any order
little during testing	some	extensive client involvement	considerable
formal testing setting	realistic work setting stressed	classroom atmosphere	not specified
4 hours without work samples	6-7 days	average - 2 hours per work sample	5½ hours

Outline	Career Hester	McCarron-Dial	Micro-TOWER
5. Administration			
a. Procedures	specified in detail	specified in detail	specified in detail
b. Method of Instruction Giving	oral and demonstration	oral and demonstration	audio cassette, evaluator demonstrations
c. Separation of Learning/Performance	not applicable	not applicable	stressed, almost total
d. Providing Assistance to Client	no assistance after timing begins	little assistance provided	no assistance after timing begins
e. Repeating Work Samples	if necessary, after two weeks	if necessary	not specified
6. Scoring and Norms			
a. Timing	evaluator times client	evaluator times client	cassette tape
b. Timing Interval	varies with type of test	specified time limits	specified time for each work sample
c. Time Norms	no spearate time norms given	some separate time norms	no time norms used
d. Error Scoring	no separate error scores given	compared to standards	number completed; pieces correct
e. Scoring Aids	some use	not used	some use
f. Quality Norms	not used in testing	combined with time norms for overall score	rated on 5 point scale
g. Emphasis in Scoring	time to completion or number of responses	quality	emphasis on quality
7. Observation of Clients			
a. Work Performance	Because the Career Hester uses psychological and psychophysical tests, no behavior observations are made, except for estimates on the people functions	factors identified	no specific factors defined
b. Work Behaviors		clearly defined	5 work behaviors listed
c. Recording System		2 separate instruments used	none
d. Frequency of Observation		2 hours for 5 days	frequent observations expected
8. Reporting			
a. Forms	standardized forms for all phases	standardized forms for all areas	standardized forms for all phases
b. Final Report Format	computer generated report lists specific jobs and other data	profile of results and recommendations; computerized report	3 separate forms used to report different results

OA/ES	JEVS	Prep	Valpar #17
omits many details	specified in detail	specified in detail	specified in detail
oral and reading	oral and demonstration	audiovisual	oral, oral and demonstration or oral and demonstration with a sample; some audiovisual
not relevant	minimal	minimal	minimal
not specified	assistance lowers score	little assistance after timing begins	not specified
discretion of evaluator	not recommended	client request	strongly recommended
evaluator times client	client uses time clock	evaluator times client or client times self	only one time score used on entire system
varies with type of test	from end of instructions to completion of task	duration of work sample	preset for the one task
not used	rated on 3 point scale	no separate time norms	used only for one task
incorrect answers marked	random check, compared to standards	compared to standards	except for one area number of correct responses
computer scored	minimal use	some use	not used
no separate quality norms	most rated on a 3 point scale	acceptability ratings	based on total points
number of correct responses	time and quality given equal weight	quality	number of correct responses
not used	16 specific; 4 general factors specified	no factors recorded	no factors listed
9 used	clearly defined	some factors defined	some specific areas defined
5 point rating scale	3 point rating scale	3 point rating system	3 point rating scale
not specified	extensive observation	not specified	not specified
standardized forms for all phases	standardized forms for all phases	standardized forms for all phases	standardized forms for recording and scoring
computer printout and work sample summary of results	standardized format recommends Work Groups	narrative summary; standardized format	not used; depends upon facility

Outline	Career Hester	McCarron-Dial	Micro-TOWER
9. Utility			
a. Vocational Exploration	little use to client	little use to client	some direct client use
b. Vocational Recommendations	completely related to DOT	1 of 5 program areas are recommended	related to DOT
c. Counselor Utilization	designed for counselor's use	disability determination	designed for counselor use
10. Training in the System			
a. Training Required	yes	yes	no
b. Training Available	yes	yes	yes
c. Duration	1 day	3 days	2 or 3 days
d. Follow-up	available	not required	not specified
11. Technical Considerations			
a. Norm Base	little information available	several groups of disabled clients	19 different norm groups
b. Reliability	test-retest reliabilities high	high .80's; low .90's	adequate data in manuals; high reliabilities
c. Validity	manual contains very little data	considerable data in manuals; separate studies in literature	construct concurrent validity reported

OA/ES	JEVS	Prep	Valpar #17
some use to clients	limited use	extensive occupational information given to client	some direct client use
occupational group; from DOT	highly related to the DOT	specific jobs and groups of jobs	largely dependent upon user
designed for counselor use	orientated toward counselor	designed for client self-interpretation	results of each specific task designed for counselor usage
yes	yes	no	no
yes	yes	yes	yes
1 week	1 week	3 - 5 days	1 day or more
available	1 technical assistance visit	yes	as requested by user
231 working adults	1100 clients	student norms on work samples	"research norms"
test-retest reliabilities given	no data available	no data available	no data available
no data presented	no recent data are available	content validation only	no data available

Outline	SAGE	TAP	TOWER
1. Development			
a. Sponsor	Train-Ease Corporation	Talent Assessment Programs	Vocational Rehabilitation Administration
b. Target Group	students; disadvantaged borderline mentally retarded	mental levels above trainable mentally retarded	physically and emotionally disabled
c. Basis of System	DOT	DOT and GOE	job analysis of possible jobs for disabled
2. Organization			
a. Number of Work Samples	14 tests, inventories and work samples	10	93
b. Grouping of Work Samples	4 areas	each is independent	14 training areas
c. Manual	separate manual for each section; all system details given	single manual; contains all system details	single manual; some details not provided
3. Physical Aspects			
a. Packaging of Work Samples	all hardware packaged individually	all individually packaged	Because ICD does not sell hardware, each facility must construct their own. This section is not relevant for TOWER
b. Durability	appears durable	extremely durable	
c. Expendable Supplies	no consumables except forms	no consumable materials	
d. Replacement	from distributor	locally or from distributor	
4. Work Evaluation Process			
a. Preliminary Screening	not required	not specified	emphasized for planning
b. Sequence of Administration	discretion of evaluator	8 of the work samples can be given in any order	progressive within 14 areas
c. Client Involvement	little during testing	discretion of evaluator	not specified
d. Evaluation Setting	formal testing	not specified	realistic work setting stressed
e. Time to Complete Entire System	4 hours	2½ hours	3 weeks

Valpar	Singer	VIEWS	VITAS
Valpar International	Singer Educational Division	Philadelphia JEVS	Manpower Administration
general population, industrially injured worker	special needs population	mentally retarded	educationally and culturally disadvantaged
trait and factor	groups of tasks in related jobs	DOT	DOT; GOE
16	24	16	21
each is independent	each is independent	4 Worker Skill Groups	16 Work Groups
separate manual for each work sample; most material detailed	single evaluators manual; very detailed	very detailed	detailed
all individually packaged	each self-contained in a carrel	most individually in portable plastic cabinets	each packaged separately
very durable	expect some problems	very durable	very durable
few consumable supplies used	wood, wire, chemicals	paper, string, fiberboard	paper, string, sheet metal
order from developer	supplies locally or through Singer	all replacement parts from developer	supplies locally; parts from developer
not required	not required	not required	not specified
discretion of evaluator	discretion of evaluator	progressive from least to most complex	progressive from least to most complex
minimal	considerable client involvement	extensive client involvement	considerable client involvement
classroom or work place	classroom atmosphere	realistic work setting stressed	realistic work setting stressed
estimate about 1 hour per work sample	2½ hours per work sample	20 to 35 hours	15 hours

Outline	SAGE	TAP	TOWER
5. Administration			
a. Procedures	most specified in detail	specified in detail	some specified in detail, except layout
b. Method of Instruction Giving	self-administered or by oral instructions	oral and demonstration	written and demonstration
c. Separation of Learning/Performance	clear separation	some	not specified
d. Providing Assistance to Client	not specified	none	not specified
e. Repeating Work Samples	permitted if invalid results suspected	encouraged for upgrading	encouraged for upgrading
6. Scoring and Norms			
a. Timing	electric and electronic timing devices	evaluator times client	evaluator times client
b. Timing Interval	specified period of time for each task	from end of instructions to completion of task	from end of instructions to completion of task
c. Time Norms	converted to 5 or 6 point scales	actual time recorded; some have error penalties	rated on 5 point scale
d. Error Scoring	not relevant - errors not recorded	errors on some tests incorporated into time scores	compared to standards
e. Scoring Aids	extensive use	not used	extensive use
f. Quality Norms	not relevant	some combined with time norms for overall score	rated on 5 point scale
g. Emphasis in Scoring	only number of correct responses are recorded	time	time and quality given equal weight
7. Observation of Clients			
a. Work Performance	no behavioral observational data are collected at present	no factors defined	only one factor defined
b. Work Behaviors		no factors defined	a few listed in final report
c. Recording System		no rating method used	5 point rating scale
d. Frequency of Observation		not specified	not specified; frequent observations assumed
8. Reporting			
a. Forms	standardized forms for all phases	two standardized forms	standardized form for all phases
b. Final Report Format	profile of results on each area; no narrative report	profile of results on specific jobs given	narrative report using standardized outline and ratings

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Valpar	Singer	VIEWS	VITAS
specified in detail	specified in detail	specified in detail	specified in detail
oral and demonstration; some reading	audiovisual	oral and modeling, flexibility to use a variety of techniques stressed	oral and demonstration
8 work samples have formal practice periods	little	almost total; well established criteria	no separation
not specified	checkpoints built in	little assistance after timing begins	minimum assistance
evaluator's decision	at request of client	repeated if considered necessary	not recommended
evaluator times client	evaluator times client	evaluator times client	evaluator times client
from end of instruction to completion of task	varies with each work sample	after task is learned to completion	after instructions until task completed
actual time recorded; results in percentiles; MTM	based on number of minutes to completion	rated on 3 point scale; also MODAPTS	rated on 3 point scale
scored separately and combined with time scores	compared to criteria	compared to standards	compared to standards
some use	some use	some use	extensive use
separate norms; percentiles; MTM	5 point scale or subtracted from time score	rated on 3 point scale	rated on 3 point scale
weighed combination of time and errors	time and errors given equal weight	time and errors given equal weight	time and errors given equal weight
no factors defined	20 factors defined	10 factors defined	9 factors defined
17 factors defined	none listed	clearly defined	several general factors defined
5 point rating scale	none used for behaviors - records actual observations	specific behaviors reported	specific behaviors reported
not specified	not specified	extensive	almost constant observation stressed
separate form for each work sample	standardized forms for all phases	standardized forms for all phases	standardized forms used for all phases
none used; independent work samples	no format given; includes description of contents	standard format containing behavior data and recommended Worker Trait Groups	standardized format; stresses Worker Trait Groups

Outline	SAGE	TAP	TOWER
9. Utility			
a. Vocational Exploration	very limited use	limited use	exposure to a variety of work areas
b. Vocational Recommendations	lists job titles and DOT codes	related to specific jobs	limited to jobs related to work areas
c. Counselor Utilization	dependent upon user	orientated toward counselor	orientated toward counselor
10. Training in the System			
a. Training Required	no	yes	yes
b. Training Available	yes	yes	yes
c. Duration	1 day	1½ days	2 weeks
d. Follow-up	available	as needed	no
11. Technical Considerations			
a. Norm Base	high school students, adults	7 different norm groups	clients
b. Reliability	test-retest; reasonably high	.85 coefficient of stability	no data available
c. Validity	data presented in manual	no data available	equivocal results

Valpar	Singer	VIEWS	VITAS
limited use	extensive information given to client	little use to client	little use to client
depends upon use in facility	dependent upon user	related to DOT	related to DOT and supportive services
cannot be specified	dependent upon user	orientated toward counselor	aimed at counselor
no	no	yes	yes
yes	yes	yes	yes
as needed	2 day, 1 or 2 weeks	1 week	1 week
available	available	1 technical assistance visit	1 technical assistance visit
6 different norm groups; MTM norms	clients, employed workers, MTM	452 mentally retarded MODAPTS	600 CETA clients
data available; cannot be assessed	test-retest .61 and .71	no data available	no data available
no data available	mostly content	no data available	no data available

Outline	Brodhead-Garrett	WREST	WSD
1. Development			
a. Sponsor	Brodhead-Garrett	Jastak Associates	Attainment Co.
b. Target Group	handicapped and disadvantaged	severely disabled - mentally and physically	severely "mentally disabled persons"
c. Basis of System	not specified	not specified	3 basic prevocational skills
2. Organization			
a. Number of Work Samples	18 work samples - Phase I	10	20
b. Grouping of Work Samples	3 Phases - Phase I - sorting, assembly, and salvage	each work sample is independent	function and difficulty
c. Manual	separate manual for each phase. Phase I lacks many details	well organized manual; contains all details	single manual; most system details given
3. Physical Aspects			
a. Packaging of Work Samples	Phase I - packaged in large wooden cabinet	system packaged in wood cabinet	each work sample packaged individually
b. Durability	very durable	durable	durable
c. Expendable Supplies	Phase I - minimal amount	mostly paper products	forms and plastic bags
d. Replacement	assumed to be from local sources	from developer	extras provided; also order from developer
4. Work Evaluation Process			
a. Preliminary Screening	not required	not required	not specified
b. Sequence of Administration	discretion of evaluator	discretion of evaluator	by difficulty
c. Client Involvement	assume fairly high degree of involvement	clients told purpose and use of results	not specified
d. Evaluation Setting	mostly classroom	formal testing setting	classroom and work activity level
e. Time to Complete Entire System	reviewer estimates Phase I in 1 week	1½ hours	not relevant - training stressed

Outline	Brodhead-Garrett	WREST	WSD
5. Administration			
a. Procedures	not specified	specified in detail; can be group administered	specified in detail
b. Method of Instruction Giving	oral & demonstration	oral & demonstration	modeling & oral
c. Separation of Learning/Performance	some	considerable	minimal
d. Providing Assistance to Client	not specified	none given after timing starts	discretion of the evaluator
e. Repeating Work Samples	permitted to correct excessive errors	encouraged for upgrading	repeated for upgrading
6. Scoring and Norms			
a. Timing	evaluator times client	evaluator times client	not specified
b. Timing Interval	from end of practice to completion of task	from end of instructions for a specified period of time	not specified
c. Time Norms	reported on 3 point scale	time to completion; compared to scaled scores	MTM norms
d. Error Scoring	not specified	compared to standards	compared to standards
e. Scoring Aids	not used	not used	not used
f. Quality Norms	no spearate quality norms	all errors totaled for a single quality score	percentage of errors
g. Emphasis in Scoring	time and quality given equal weight	time	time and accuracy given equal weight
7. Observation of Clients			
a. Work Performance	no factors defined	no factors defined	no factors mentioned
b. Work Behaviors	36 defined	10 defined in general terms	no factors mentioned
c. Recording System	5 point scale	scale from 1 to 18	no rating system used
d. Frequency of Observation	not specified	not specified	not specified
8. Reporting			
a. Forms	standardized forms for recording scores and work behaviors	standardized form for recording performance	standardized form for recording performance
b. Final Report Format	4 page final report, topic headings	numerous examples given in manual	used mostly for training; no report format used

Outline	Brodhead-Garrett	WREST	WSD
9. Utility			
a. Vocational Exploration	extensive, especially with Phase II	limited use	mainly prevocational training device to teach basic skills in assembly, discrimination and packaging
b. Vocational Recommendations	by job area	not specified	
c. Counselor Utilization	not specified	not specified	
10. Training in the System			
a. Training Required	none	none	yes
b. Training Available	yes	none	yes
c. Duration	2 days to 1 week	not applicable	1 day
d. Follow-up	as needed	not applicable	yes
11. Technical Considerations			
a. Norm Base	no data available	3 major groups; characteristics well defined	MTM
b. Reliability	no data available	test-retest coefficients in .80's and .90's	no data available
c. Validity	no data available	correlations between scores and supervisor's ratings .86 and .92	no data available

The Career Evaluation System

(Career Hester)

1. Development

   a. Sponsor - Originally developed by Dr. Edward Hester of Goodwill Industries of Chicago, the Hester is presently being marketed by Career Evaluation, Inc.

   b. Target Group - The original test battery, now relabeled the Series 200, was designed to assess physically and mentally handicapped populations. Recently a 17-test modification of the original system was developed for use with normal populations with no physical or working condition limitations.

   c. Basis of the System - The Career Hester was originally based almost exclusively on the third edition of the Dictionary of Occupational Titles; recent revisions in the scoring system have resulted in a change to the fourth edition of the DOT. The system emphasizes the Data-People-Things hierarchy (DPT), physical conditions, environmental conditions, general vocational preparation, and specific vocational preparation. It must be stressed that the Hester is not a work sample system, but a battery of psychological tests and ratings designed to relate client scores to the DOT.

2. Organization

   a. Name and Number of Work Samples - For the Series 200, 26 separate performance and paper-and-pencil tests (for a total of 39 separate scores) are used to measure 18 aptitude factors. These scores evaluate the client's abilities on the Data and Things hierarchies. (The system requires the evaluator to determine some People levels based on interviews, case histories, and behavior observations.) The 26 aptitude tests are presented below; the equipment or test used to obtain each score is given in parentheses:

      Finger Dexterity (Purdue Pegboard), Wrist-Finger Speed (Tapping Board), Arm-Hand Steadiness (Lafayette Motor Steadiness Kit), Manual Dexterity (Minnesota Rate of Manipulation), Two-Arm Coordination (Two-Arm Tracing Apparatus), Two-Hand Coordination (Etch-A-Sketch with Maze Overlay), Hand-Tool Dexterity (Hand-Tool Dexterity Test), Multiple Limb Coordination (foot operated stapler), Machine Feeding (folding machine), Perceptual Accuracy (projector with slides), Perceptual Speed (Tachistoscope), Spatial Perception (Revised Minnesota Paper Form Board Test), Depth Perception (Lafayette Depth Perception Apparatus Box) Aiming (Lafayette Motor Steadiness Kit), Reaction Time (Multi-Stimulus Reaction Timer), Fine Perceptual Motor Coordination (Polar Pursuit Tracker), Visual Motor Reversal

(Mirror Tracing Apparatus), Abstract Reasoning (Raven Progressive Matrices), Verbal Ability (SRA Verbal Test - L Scale), Numerical Ability (SRA Verbal Test - Q Scale), Decision Speed (same equipment as Perceptual Accuracy), Response Orientation (same equipment as Reaction Time), Oral Directions (Personnel Tests for Industry - Oral Directions Test), Reading (Gates-McGinitie Comprehension Test), Arithmetic (Level I of the Wide Range Achievement Test), Hand Strength (grip dynamometer) and Lifting Ability (standing platform).

b. Grouping of Work Samples - Each test is independent; they are not grouped during administration nor in data recording.

c. Manual - The 1981-82 revision contains all system details, including administration instructions, data entry codes, sample computer printouts, interpretation of results, and inventory. Examples of all forms are given. The manual is computer printed; some of the sample computer printout and forms are almost impossible to read and are replaced at no cost.

3. Physical Aspects

a. Packaging of the Work Samples - Each apparatus and test are packaged separately for shipping. Because the master control is used for several of the psychophysical tasks, the set-up must be changed for some tasks. The standardized psychological tests can be ordered directly from their respective publishers.

b. Durability - While no data on the repair or replacement records have been made available to the reviewer, he is of the opinion that most of the apparatus would be fairly durable if adequately cared for.

c. Expendable Supplies - The only apparatus tests using expendable supplies are the folding machine and the foot operated stapler. The system uses many test forms, answer sheets, etc.

If the DATAPOINT 1500 series or similar computer is used for on-site scoring, other useful computational operations are available: bookkeeping, personnel records, client records and word processing.

d. Replacement - Because of the use of precision apparatus and the need for standardized test answer sheets, all replacement parts must be ordered from the developer or the respective test publishers. Almost no parts can be obtained locally.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required. In the three week Vegas Evaluation Program designed by and used at Chicago Goodwill, the system was administered at the beginning of the program to determine basic abilities.

b. Sequence of Work Sample Administration - With one exception, the tests do not have to be given in any specific order. The manual recommends that apparatus tests be given first.

c. Client Involvement - Because of the formal nature of the testing process and the emphasis upon accurate measurement, there is little client involvement during actual testing.

d. Evaluation Setting - The psychometric basis of the Series 200 creates, by necessity, a formal testing atmosphere. The emphasis on accurate measurement using psychophysical devices to determine reaction time, dexterity, etc., results in a laboratory-like environment.

e. Time to Complete the Entire System - The developer estimates that the entire battery can be administered in about five hours. The individually administered apparatus tests take about one hour to administer. The remaining four hours are devoted to paper-and-pencil tests that can be administered to small groups.

5. Administration

a. Procedures - For each test the manual gives the purpose, materials, test conditions, administration, scoring and data recording. In addition, test manuals are provided for all commercially available tests. All procedures are thoroughly defined.

b. Method of Instruction Giving - All instructions are read aloud to clients and many are accompanied by short demonstrations. The manner of communication of the instructions may be varied to accommodate any special client problems (e.g., hearing problems, low intelligence).

c. Separation of Learning/Performance - The manual emphasizes this separation and stresses that, within the limits of the test, the client have a full practice period and understand the test. Within the limits of the tests per se, this is a practical solution.

d. Providing Assistance to the Client - The evaluator is to make certain that the client fully understands the instructions for each test. No assistance is given during the actual administration of the tests.

e. Repeating Work Samples - Tests may be readministered if there is reason to believe that a client was erratic or he/she was not functioning at their normal level. Testing may be repeated within two or three days of the initial administration. The higher score is usually reported.

6. Scoring and Norms

a. Timing - The evaluator times the client. The timing of the psychophysical tests is carefully controlled by electrical timing devices. A stopwatch or other timing device is used for the paper-and-pencil and dexterity tests.

b. Timing Interval - For many tests, timing is the speed with which the client responds to a specific stimulus by performing highly unique responses. A few tests are timed from either start to completion or for a definite period of time.

c. Time Norms - No separate time norms are presented. The raw test scores are sent to the developer for computer scoring.

d. Error Scoring - A few separate error scores are computed. The psychophysical tests use mostly time to completion or the number of responses performed within a definite time limit.

e. Scoring Aids - A few transparencies are used to quickly identify correct answers.

f. Quality Norms - There are no quality scales except in the People Functions estimates.

g. Emphasis on Scoring - The emphasis is on time to completion, number of responses performed within a definite time limit, or number of correct responses.

7. Observation of Clients

a. Work Performance -

b. Work Behaviors -

c. Rating System -

d. Frequency of Observation -

} Because the system is a group of psychological and psychophysical tests, no behavioral observations are made, except for estimates on the People Functions.

8. Reporting

a. Forms - Standard forms are used to record responses on most of the psychophysical tests. All data, together with demographic information, are transferred to a final form prior to computer scoring and job selection. The raw scores may be processed in three major ways: (1) Mail the data to Career Evaluation Systems, Inc. (2) Telephone in the data, which is processed the same day it is received. Basic processing costs for the Series 200 are $20.00 and for the Series 100 are $15.00, which includes the return first class mailing. Discounts of up to $4/case on a monthly basis are available for large or periodic users. (3) Use of a computer terminal for direct access. Large users may purchase a minicomputer (64K, 8" disks) or adapt software to their existing hardware and use the Series 200 software under license.

b. Final Report Form - "The computer transforms raw test scores into scale scores using a 1 to 6 scale. The highest score attainable is 6.0 and the lowest is 1.0." The scale scores are given graphically as well as listed beside each score. The printout contains four major sections: (1) demographic and identification supplied

by the evaluator, (2) the scores for each test, (3) the Data-People-Things hierarchies showing the client level of functioning, and (4) specific DOT job titles sorted from most to least feasible. For each job title listed the following information is presented: DOT code number, page, OAP Group Code, physical demands, environmental conditions, general educational development, and specific vocational training. In addition, the Series 100 output also contains a summary and evaluation of OAP groups represented in the output.

9. Utility

   a. Vocational Exploration - The formal testing atmosphere and the lack of introductory explanations relating the tests to jobs offers the client almost no chance for vocational exploration.

   b. Vocational Recommendations - The major purpose of the system is to make specific vocational recommendations. As stated above, the printout lists specific job titles that are considered as being realistic.

   c. Counselor Utilization - The system is designed to report jobs that are within the client's abilities. This information, if communicated to the referring counselor effectively, could be very useful as a realistic basis for client choice, to broaden client vocational expectations, to help screen local opportunities and to plan training for technical vocations.

10. Training in the System

   a. Training Required - Training is required prior to use.

   b. Training Available - Training is available either at Career Evaluation, Inc. or at the purchasing facility.

   c. Duration - One day of free training is provided with the purchase of the system. Retraining or training for new staff are also available at a cost of $150.00.

   d. Follow-up - Retraining is available upon request.

11. Technical Considerations

   a. Norm Base - The old 1976 manual states that "norms were developed over the years from test scores of staff members and clients at the Goodwill Rehabilitation Center program." However, the norm group is not fully described, no norms are given, no data on the conversion process from raw scores to scaled scores are given. The revised manual does not contain a technical section. In short, there is a total lack of information on this phase of the system.

   b. Reliability - Test-retest reliabilities for individual tests on 45 clients retested after four weeks range from .72 to .95. These are high. The second type of reliability is the reproductibility of the

job list. In a test-retest situation, 78% of the job families listed on the first printout were the same as those listed on the second.

c. Validity - There are very little data. The construct validity of the system is based on several factor analyses; however, none of these are given in the old manual. A concurrent validation study of 156 dentists demonstrated that 80% of the dentists "would have been recommended to enter dentistry."

12. Reviewer's Summary and Comments - The system uses the human factors approach that has been used as a test development model for over 40 years. This approach has proven successful for many psychological tests. The Series 200 attempts to present a picture of the client's aptitudes and to match these aptitudes with the structure of the DOT. The logical structure has a definite appeal to persons who stress aptitude testing as part of the vocational evaluation process. It must be emphasized that the lack of detailed information on the development and the validity of the system is a major source of concern for the Series 200. It is of less concern with the Series 100 applied to normal populations, since most of the Series 100 tests have standard norms. While descriptions of the development process and the scoring procedures are critical for all work sample systems, they are even more critical in a system that handles a large mass of data in ways that are not readily available for the user's inspection. The lack of details on the process, coupled with the almost total lack of technical data, force the potential user to accept the results on faith. The system does not claim to be a complete vocational evaluation system--the developer realizes the need for occupational information, interest determination, accurate behavioral observations, and evaluator interaction with the client. The system could be best described as a very logical series of tests designed to relate client abilities to the Data-People-Things hierarchies of the DOT. The system is probably best used for initial screening at the beginning of the vocational evaluation process or for when short, yet comprehensive assessment is needed.

13. Address

Career Evaluation Systems, Inc.
7788 Milwaukee Avenue
Niles, Illinois 60648

14. Cost

The total cost per installed system is $3,250.00 for the Series 100 and $7,550.00 for the Series 200. This includes all testing equipment, paper-and-pencil tests, data sheets, forms for 100 clients, training, and data processing of 10 clients. The Series 100 can be easily upgraded to a Series 200 battery.

15. References

Botterbusch, K., Hester Evaluation System. In A. Sax (Ed.), Innovations in Vocational Evaluation and Work Adjustment. Vocational Evaluation and Work Adjustment Bulletin, 1975, 8(4), 62-65.

*Hester, E. J., The differential effects of disability and sex on job sample task performance. Unpublished doctoral dissertation, Loyola University, 1969.

Hester, E. J., Hester Evaluation System. Unpublished paper, Goodwill Industries of Chicago, n.d.

McCarron-Dial Work Evaluation System

(McCarron-Dial or MDS)

1. Development

   a. Sponsor - The MDS was originally developed by Lawrence T. McCarron and Jack G. Dial. It is presently being marketed by McCarron-Dial Systems (Common Market Press).

   b. Target Group - The system can be used with: (1) mentally retarded, (2) mentally ill, (3) specific learning disabilities, and (4) neuropsychologically disabled (i.e., higher brain center structural or functional disorders). It can also be adapted for use with blind and deaf persons. Outside of rehabilitation settings it has been used to assess normal and functionally delayed children.

   c. Basis of the System - The system is based on five factors: verbal-spatial-cognitive, sensory, motor, emotional, and integration-coping. These five factors were derived from an assessment of three dimensions: verbal and synthetic-spatial skills; sensorimotor skills; and emotional-coping skills.

2. Organization

   a. Name and Number of Work Samples - The MDS consists of eight separate instruments grouped into five factors:

      1) Verbal-Spatial-Cognitive - Wechsler Adult Intelligence Scale (or the Stanford-Binet Intelligence Scale) and the Peabody Picture Vocabulary Test (PPVT). In many instances, an achievement test such as the Wide Range Achievement Test (WRAT) or the Peabody Individual Achievement Test (PIAT) is also given.
      2) Sensory - Bender Visual Motor Gestalt Test (BVMGT) and the Haptic Visual Discrimination Test (HVDT). For visually disabled clients, the Haptic Memory Matching Test (HMMT) is used in place of the HVDT and the BVMGT.
      3) Motor - McCarron Assessment of Neuromuscular Development (MAND). The following ten tasks assess fine and gross motor abilities:
         a) Fine Motor Skills Assessment: Beads-in-Box; Beads-on-Rod; Finger Tapping; Nut and Bolt; and Rod Slide.
         b) Gross Motor Skills Assessment: Hand Strength; Finger-Nose-Finger; Jumping; Heel-Toe Walk; and Standing On One Foot.

         There are 39 possible scoring options for these ten measures. For visually disabled clients, the Adaptation of the MAND for the Visually Impaired is available.
      4) Emotional - Observational Emotional Inventory (OEI). In some instances, the MMPI and the House-Tree-Person are also used.
      5) Integration-Coping - The Dial Behavior Rating Scale (BRS) and the Street Survival Skills Questionnaire (SSSQ) are used.

   b. Grouping of Work Samples - The tests, tasks, and scales are grouped according to five factors; all devices are closely interrelated.

c. Manuals - The system uses a total of four manuals: (1) MDWES--Evaluation of the Mentally Disabled: A Systematic Approach; (2) McCarron Assessment of Neuromuscular Development Manual; (3) Sensory Integration: The Haptic Visual Processes, and (4) Adaptive Behavior: The Street Survival Skills Questionnaire. In addition, separate manuals are required for the Psychological tests (e.g., PPVT, Bender). These manuals contain all system details. The MDWES manual contains an overview of the system as well as data on combining and interpreting the results. However, because this manual is relatively detailed and statistically sophisticated, several careful readings will be required before the reader will be able to fully understand the system.

3. Physical Aspects

a. Packaging of the Work Samples - The MDWES is packaged in five separate kits, each about the size of a large briefcase. An auxilary kit contains the Bender, PPVT, the OEI, BRS, reporting forms and the system manual. The MAND, HVDT, HMMT, and SSSQ are each contained in separate kits.

b. Durability - The only component of the MDWES to which the question of durability applies is the MAND. Because the evaluator or psychologist sets up the equipment and is present at all times, there should be little problem with durability.

c. Expendable Supplies - The only expendable items are the various test answer sheets, behavioral observation forms and report forms. No consumable materials are used.

d. Replacement - All replacement parts must be ordered from the developer. This is absolutely necessary to maintain standardization of the testing materials.

4. Work Evaluation Process

a. Preliminary Screening - An interview with the client and the referral source is urged to obtain background data on the client.

b. Sequence of Work Sample Administration - Administration begins with factor one and continues through factor five.

c. Client Involvement - Client involvement is encouraged during the assessment period. Upon completion, the manual recommends individual counseling to provide help for the client to move toward realistic work-training goals and expectations.

d. Evaluation Setting - A formal testing setting is used for factors one through three and for the SSSQ in factor five. The other two factors require a period of placement in a work setting, most commonly a sheltered workshop. When used in clinical or educational settings, office or classroom situations are used for making behavioral observation.

e. Time to Complete the Entire System - The first three factors and the SSSQ (factor five) can be completed in a day or less. A minimum of one week (two weeks are recommended) for systematic observation in a work setting, most commonly a sheltered workshop, is required for the emotional and integration-coping factors when used in work evaluation.

5. Administration

a. Procedures - Instructions, materials needed, layout and scoring procedures are all specified in detail. Standardized tests are administered according to instructions in their test manuals.

b. Method of Instruction Giving - All instructions for factor three (MAND) and parts of factors two (HVDT) and five (SSSQ) are given orally through demonstration accompanied by kinesthetic cues or total communication systems as needed. Factors one and the Bender (factor two) are given according to their manuals.

c. Separation of Learning/Performance - Most of the factors in the MDWES are based on formal testing concepts which do not separate learning from performance. The MAND allows for repeating of instructions, but has no formal criteria as to when the instructions have been learned. Because the McCarron-Dial is not a work sample system per se, this aspect is not appropriate for most of the MDWES assessments.

d. Providing Assistance to Clients - The evaluator is to make certain that the client fully understands the instructions of each task; no assistance beyond that specified by the test manuals can be given during formal testing.

e. Repeating Work Samples - All factors may be repeated as necessary if the evaluator questions the accuracy of the results. However, readministration of many of the assessments depends upon the instructions in their individual manuals.

6. Scoring and Norms

a. Timing - The evaluator times the client on many tasks; some parts of the McCarron-Dial are untimed.

b. Timing Interval - The tasks that are timed generally involve counting the number of responses or accurate observation for a specified number of seconds.

c. Time Norms - Separate time norms are given for four of the MAND tests (i.e., Beads-in-Box, Beads-on-Rod, Nut-and-Bolt and Standing on one foot). The remainder of the tasks (except the WAIS) involve the combination of time and quality scores to form a single raw score or a performance score. These scores are converted to percentiles and plotted on a profile sheet.

d. Error Scoring - The quality of performance is compared to a well defined set of standards.

e. Scoring Aids - No scoring aids are used.

f. Quality Norms - See "c. Time Norms" above.

g. Emphasis in Scoring - The system emphasizes the quality of performance.

7. Observation of Clients

a. Work Performance - Work performance factors are identified in various rating scales, in the SSSQ, and in the interpretive guidelines provided in the MDWES Manual.

b. Work Behaviors - Work behaviors, as well as personal-social adjustment behaviors, are clearly specified and many specific work behaviors are listed. Most behaviors are defined in observable behavioral terms.

c. Recording System - The OEI and the BRS use a five-point scale to rate behaviors and performance factors; the OEI uses a frequency of occurrence scale, while the BRS is a Likert-type scale. Each instrument has its own system of combining the individual ratings to form different scales.

d. Frequency of Observation - The OEI requires the recording of the presence or absence of 50 different behaviors that may manifest during a standard two hour observation period conducted each of five days. If the behavior(s) occurs and is further judged to interfere with productivity, personal adjustment or work performance of others, it is rated.

8. Reporting

a. Forms - Standardized forms are included for the assessment of many of the motor tasks and behavioral observations. Summary forms, an Individual Evaluation Profile (IEP) and an Individual Program Plan (IPP) are also included. The process for scoring and interpretation is clearly detailed in a supplemental manual.

b. Final Report Format - The standard format for comprehensive reporting includes specific scores (raw scores, MDS T-scores and z-scores); vocational and residential placement scores; behavioral observations; case history information; lists of strengths and deficits; programming priorities; and programming recommendations. The forms which may be used for report development are the Individual Evaluation Profile (IEP), Individual Program Plan (IPP), Programming Worksheet, and the Computer Assessment Program (CAP). The IEP and IPP include profile graphs which visually summarize all scores and compare them to the general population mean, special population mean, the individual's mean, and the vocational program T-score range. Space is available in the IPP to include results from other tests and work samples. The final report may consist of the CAP, IPP and a summary narrative written by the evaluator.

The new Computer Assessment Program (CAP) provides an automated interpretation of McCarron-Dial System input data (raw scores, birthdate, and date of evaluation) for prevocational, vocational and educational programming. This program has the following features: (a) Prints an individual profile of strengths and deficits in factors related to vocational and educational programming; (b) recommends general vocational and residential program placement; (c) interprets the MDS individual assessment data for verbal-spatial-cognitive, sensorimotor, and emotional-coping abilities; (d) estimates the probability of community employment and suggests general ranges of current and anticipated earnings; (e) identifies deficits in comparison to the general population mean and the individual's mean MDS T-scores; and (f) prints a programming work sheet that indicates the priority of each MDS factor for program planning and training purposes.

9. Utility

   a. Vocational Exploration - The formalized assessment procedures required for the first three factors offer almost no chance for client vocational exploration. The observation period either in a sheltered workshop or on a job site could provide chances for exploration, but this depends on the program of each facility. However, the McCarron-Dial Occupational Exploration System (OES) is an extension of the Computer Assessment Program (CAP). The OES generates a list of DOT-coded occupations based on an analysis of the evaluee's factor scores obtained from the MDS and WRAT standard scores. The selected occupations are listed in the OES report by Worker Trait Group/Occupational Aptitude Profile number, DOT number and job title.

   b. Vocational Recommendations - The system assesses the client's ability to function in one of the following vocational program areas: day-care, work activities, extended sheltered employment, transitional training, semi-skilled, skilled, and technical/professional. The system also provides guidelines for assessing the client's potential functioning in one of five living programs: institutional, intermediate care, group home, halfway house, and community independent living. Examples of final reports for work, educational, and clinical uses are provided in the various manuals. Emphasis is on educational and vocational programming, development and placement.

   c. Counselor Utilization - The system is designed for disability determination which includes a description of assets, functional limitations, and adaptive capacities. The system is aimed at providing counselor information and counselor involvement is recommended.

10. Training in the System

   a. Training Required - A written commitment to pursue training is a purchase prerequisite.

   b. Training Available - Basic training is available in work evaluation and neuropsychological uses of the MDS. Workshops are held where need indicates as well as in Dallas, Texas at the MDS administrative office. Advance training is also available on a periodic basis.

c. Duration - Each training session takes three days.

d. Follow-up - No follow-up or site visits are required. They are, however, recommended by the developer for maximum use of the system.

11. Technical Considerations

a. Norm Base - Norms for the WAIS, Stanford-Binet, PPVT, MAND and HVDT involve 2,000 or more observations each. Norms for the OEI, BRS, and SSSQ have been obtained on more than 500 disabled adults each. The original normative sample for the entire system as well as the HMMT in work evaluation was 200. Additional samples have extended this number considerably. Profile revisions occur periodically to reflect additional norms. Adult norms on the deaf, blind, and aged populations are now available on the HVDT, HMMT, and MAND. Pertinent empirical and statistical characteristics of the various norm groups are given in the manuals and in research publications.

b. Reliability - The results of several reliability studies are presented in the various manuals. Experimental methods are for the most part clearly described. Most data are presented in terms of test-retest reliability coefficients and standard error of measurements. All reliability estimates, except the PPVT, are in the high .80's and .90's.

c. Validity - A variety of validity data are presented for separate parts of the system as well as for the entire system. The data presented covers mostly construct and predictive validity. The MDS has been subjected to several studies (see references) which have demonstrated its usefulness as a diagnostic instrument.

12. Reviewer's Summary and Comments - The McCarron-Dial was designed for the purpose of assessing the mentally disabled person's ability to function. It uses a combination of widely accepted individually administered psychological tests, assessments of fine and gross motor ability, and an extended period of observation. Rather than discard those tests which have proven useful, or to rely solely on performance and behavior observation, the McCarron-Dial attempts to combine them into a single prediction tool. It is encouraging to note that some detailed, well designed studies have been conducted with the MDS. In a vocational evaluation setting, the system may achieve its best use as a preliminary assessment device for assessing general levels of functioning prior to a systematic exploration of interests and specific skills.

13. Address

McCarron-Dial Systems
P.O. Box 45628
Dallas, TX 75245

14. Cost

Auxiliary Component	$195.00
HVDT	$390.00
MAND	$490.00
SSSQ	$137.50
HMMT	$567.00
MAND Adaptations for the Visually Impaired	$ 28.00

Manuals are included in the kits but may also be purchased separately.

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1. Development

   a. Sponsor - The system was developed by the ICD Rehabilitation and Research Center. However, support was obtained from the HEW Rehabilitation Services Administration to collect normative data.

   b. Target Group - The system was primarily aimed at a general rehabilitation population, but it can also be used with special education students, the disadvantaged, and adult offenders. Although not specifically designed for mentally retarded persons, it can also be used with educable mentally retarded persons. The Micro-TOWER is not intended for use with persons who are either above average in intelligence or with persons who are trainable mentally retarded.

   c. Basis of the System - The system is basically a group aptitude test that uses work sample methodology to measure seven aptitudes as defined by the fourth edition of the Dictionary of Occupational Titles and the General Aptitude Test Battery (GATB). The statistical basis are studies on the factor analysis of several work samples and concurrent validity studies.

2. Organization

   a. Name and Number of Work Samples - The system contains 13 work samples which measure eight specific aptitudes, plus General Learning Ability or G. The work samples are, however, organized into five major groups of what can be thought of as second order factors. The primary aptitude(s) and the DOT/GATB abbreviation for each work sample are given in the parantheses:

      (1) Motor - Electronic Connector Assembly (F-finger dexterity); Bottle Capping and Packing (M-manual dexterity); and Lamp Assembly (K-motor coordination).
      (2) Spatial - Blueprint Reading (S-spatial reasoning); and Graphics Illustration (S-spatial reasoning; K-motor coordination).
      (3) Clerical Perception - Filing (Q-clerical perception; K-motor coordination); Mail Sorting (Q-clerical perception; M-manual dexterity); Zip Coding (Q-clerical perception); and Record Checking (Q-clerical perception).
      (4) Numerical - Making Change (N-numerical reasoning); and Payroll Computation (N-numerical reasoning).
      (5) Verbal - Want Ads Comprehension (V-verbal comprehension); and Message Taking (V-verbal comprehension).

      It must be noted that four work samples (Want Ads Comprehension, Zip Coding, Blueprint Reading, and Payroll Computation) have alternate forms to prevent cheating during administration and for possible use during retesting.

   b. Grouping of Work Samples - The work samples are grouped according to the five aptitude areas listed above.

c. Manual - The system contains several manuals. A general administration and scoring manual, a manual for the group discussion program, a separate manual for each work sample, a technical manual, and an inventory manual. Each of 13 work sample manuals contains the following: description, materials, setup, administration, scoring, and sample forms. All manuals are well written and detailed.

3. Physical Aspects

a. Packaging of the Work Samples - All work samples are individually packaged; no parts are used by more than one work sample.

b. Durability - The hardware is durable and because the system uses little complex equipment, minimal equipment replacement can be expected.

c. Expendable Supplies - Wire in the Lamp Assembly Work Sample and the various paper forms are the only expendable supplies.

d. Replacement - Forms can be ordered from Micro-TOWER or locally duplicated. The cassette administration tapes must be ordered from the distributor.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required prior to the administration of Micro-TOWER. The manual states, however, that a period of general orientation to the system should be given prior to work sample administration.

b. Sequence of Work Sample Administration - The manual contains several suggested schedules for administration of the work samples and for group discussion. These schedules are only suggestions and the work samples do not have to be given in any set sequence. However, because the Want Ads Comprehension Work Sample tests the ability to read and understand English, it is usually first. Within each work sample a carefully defined sequence is followed and all instructions to the clients are recorded on a cassette tape. The first step is the presentation of a series of occupational photos illustrating jobs requiring the skills assessed by the work sample. Each work sample provides an untimed learning/practice period which includes taped instructions, visual illustrations, evaluator demonstrations, and an opportunity for clients to practice. During this period, the cassette tape automatically stops at preselected places so that the evaluator can give additional instructions, etc. The evaluator is also free to stop the tape at any time if additional help is needed. After this learning/practice period comes the evaluation period. Here clients work entirely on their own without any help. After completion of the task, the clients fill out a self-report form rating their interest and perceived ability.

c. Client Involvement - Micro-TOWER emphasizes client involvement, which is accomplished in several ways. Prior to administration of the work sample, occupational information is provided; during the instruction period, the evaluator stops at several points to answer questions and

provide additional instructions. The practice period also permits feedback. The greatest client involvement is during the group discussion program. Here, client values, interests, needs, etc., are discussed. Suggested activities (e.g., job values, lifelines, choose your supervisor) are provided in a separate manual. Clients also receive formal feedback of their performances on the work samples.

d. Evaluation Setting - The evaluation setting could best be described as a combination of a formal testing situation and a group counseling environment. The Micro-TOWER is best administered in a room that is separate from the rest of the evaluation unit; a "U" shaped table arrangement is suggested. These factors add up to the formal testing atmosphere.

e. Time to Complete the Entire System - Total testing time is about 15 hours; if group discussions are included, the total evaluation takes from 19 to 20 hours. Depending on what schedule is used, the battery can be administered in between three and five days. The manual contains several suggested schedules which vary in the number of hours per day that the work samples are administered and in the presence and duration of the group discussion periods.

5. Administration

a. Procedures - General administration procedures are described in the overall manual. The specific manual on each work sample contains detailed instructions on materials, layout, administration, scoring criteria, etc. All procedures are given in great detail.

b. Method of Instruction Giving - Instructions are given by several methods. Each work sample begins with a series of large photographs showing jobs requiring skills related to the work sample. The major instructional method, however, is a separate audiocassette tape for each work sample which is coordinated with the evaluator's demonstrations. This tape is programmed to stop at certain critical points so that the evaluator can provide help, give additional explanations, or check the results of the practice exercises. The system emphasizes standardized instructions and timing and uses the audiotape as the major means of insuring this standardization. No written instructional materials are used. However, to complete some of the verbal and clerical tasks, a third to fourth grade reading level is required. In summary, there are five steps in each work sample: (1) occupational orientation, (2) basic instructions, (3) practice period, (4) timed evaluation, and (5) completion of self-evaluation.

c. Separation of Learning/Performance - The system places a great deal of emphasis on separation of learning from performance. Each work sample contains a practice period during which the clients must reach certain informal criteria. The evaluation period is timed and is only begun once the clients have understood and practiced the task.

d. Providing Assistance to the Client - Extensive assistance is provided during the learning/practice period. None is given during the actual evaluation period.

e. Repeating Work Samples - The manual contains no instructions or guidelines for repeating work samples. The only reference to readministration is made in regard to the use of alternate forms for four work samples.

6. Scoring and Norms

a. Timing - The evaluation period on each work sample is timed using a cassette tape. The tape tells the clients to "begin," then runs through a number of minutes of blank tape and then tells the client to "stop." This procedure insures accurate timing.

b. Timing Interval - Timing is for a specified period within each work sample. Clients do not continue until they have completed the task.

c. Time Norms - No time norms are used in this system. The score for each work sample is the number of correct responses; report forms also provide space for recording the number attempted.

d. Error Scoring - A separate form is used for each work sample to score the number of correct responses, pieces completed, etc. The entire product is scored for each work sample; there are no random checks. The raw scores for each work sample are recorded on the "Summary of Work Sample Performance" sheet. Quality standards are carefully defined.

e. Scoring Aids - Some use is made of scoring aids.

f. Quality Norms - The raw scores for each work sample are compared to the desired norm group. A scale is used to convert the scores into one of five possible ratings. These ratings are based on percentile norms (which are given in the technical manual), one rating for each 20 percentile points. Thus, a very high rating means that the client scored above the 81st percentile. Norms are available for 19 different groups.

g. Emphasis in Scoring - The emphasis is on the quality of work produced within a specified time period.

7. Observation of Clients

a. Work Performance - No specific work performance factors are defined in the manual or listed on the "Behavioral Observations" form. For each work sample there is a space for the evaluator to record general comments; there are no suggestions in the manual as to what these should cover.

b. Work Behaviors - Five work behaviors (i.e., understanding instructions, attention span, work attitude/motivation, need for individualized help, and efficiency) are listed on the "Behavior Observations" form; these are not defined in behavioral terms. This form also includes a section on "general behavior" containing items like appearance, physical problems and self-image. The evaluator is to make short notes for all of the "behaviors" listed on this form.

c. Recording System - No rating system is used for any of the items on the "Behavioral Observations" form. However, a six-point scale is used for general and work behaviors on the Summary Report Form.

d. Frequency of Observation - Observations are to be made during the training phase, during the performance of the work sample, and during group discussion. While no schedule for frequency is specified, it would appear that frequent observations are expected.

8. Reporting

a. Forms - The Micro-TOWER uses a variety of forms. This includes a raw score form for each work sample, the "Behavioral Observations" form mentioned above, a "Summary of Work Sample Performance" form, an attendance form, as well as reporting forms. The client completes a "Client Interest and Perceived Performance" form after the completion of each work sample; there is also a summary sheet for this form.

b. Final Report Format - There are three forms used for reporting. The first is a profile sheet based on percentiles that gives the client's results on each work sample on a scale from "much below average" to "much above average." The second is a narrative summary report format which may or may not include the forms mentioned under 7. a. Finally, there is a "Recommendations" form which uses a checklist format to cover topics such as special training, individual attention, and vocational recommendations. A computer printout of the percentile scores for each work sample is also available. These results are related to specific jobs in the fourth edition of the DOT.

9. Utility

a. Vocational Exploration - The information given at the beginning of each work sample is designed to make clients aware of what jobs are related to the aptitude(s) being measured by the work sample. Many of the topics covered in the group discussions center on relating personal needs to job demands and occupational interests.

b. Vocational Recommendations - The system relates aptitudes to Worker Trait Groups that require aptitude patterns similar to those of the client. Thus, in making recommendations, the evaluator would match client's aptitudes with those required by the Worker Trait Groups. This process would be further broken down according to interests, interpretations from behavior observations, and the results of group discussions. These recommendations would be written in narrative form in the narrative summary report.

c. Counselor Utilization - the Micro-TOWER has two major uses. The first is to present a relatively accurate assessment of job related aptitudes in a brief period of time. The second is to be a first or screening step in an extended period of evaluation. ICD, for example, uses the Micro-TOWER as a preliminary to the more time-consuming TOWER system (Reinert & Loeding, 1978).

10. Training in the System

a. Training Required - Although formal training is not required, it is desirable.

b. Training Available - Optional training programs are available.

c. Duration - Two or three days depending upon the training option.

d. Follow-up - Follow-up is available.

11. Technical Considerations

a. Norm Base - Norms are available on a total of 19 groups. Some of the major groups are: general agency rehabilitation clients, males, females, Spanish-speaking, left-handed persons, physically disabled, psychiatrically disturbed, brain damaged, cerebral palsied, students in special education, the disadvantaged, recovering drug abusers, recovering alcoholics, and adult offenders. Group sizes range from 40 to over 1300. Most sample characteristics are adequately described. Purchasers of the system can receive help from ICD in developing local norms. No employed worker norms or industrial standards are used.

b. Reliability - The Technical Manual provides data on the reliability of the Micro-TOWER work samples. The coefficients range from .74 to .97. The data was based on test-retest, alternate forms, and internal consistency estimates. These estimates are very adequate.

c. Validity - Although a factor analysis revealed a large general factor, there was also evidence for grouping the work samples into the five aptitude areas. The construct validity of the work sample battery is supported by examination of the intercorrelations of the Micro-TOWER work samples. Correlations are also available with the factors from the General Aptitude Test Battery (GATB). All data are reported in the Technical Manual. One study providing positive evidence of Micro-TOWER's use in decision-making compared the recommendations made after a one week evaluation with Micro-TOWER to the recommendations made after four additional weeks in TOWER. There was a 74% agreement on vocational recommendations, suggesting that decisions can be reached in a much shorter time for many individuals (Reinert & Loeding, 1978).

12. Reviewer's Summary and Comments - Micro-TOWER may best be described as a group aptitude battery that uses work sampling techniques as the assessment method. The system claims to measure seven of the nine aptitudes that are used in the DOT. The system has the advantage of being group administered in a fairly short period of time, thus making maximum use of evaluator time. The system attempts to go beyond the mere assessment of aptitudes by providing occupational information and group discussion. Adequate norms are available, except for employed workers. The system generally takes a standardized, psychological test approach with emphasis on carefully controlled administration conditions, the separation of

learning from performance, and the reporting of results in terms of percentiles. One major problem with the system is the lack of thorough behavioral observational materials. Another possible problem is the converse of the advantages of a group administered test - the evaluator may not be able to provide the client with the one-to-one relationship that is needed for some severely disabled persons.

13. Address

Micro-TOWER
ICD Rehabilitation and Research Center
340 East 24th Street
New York, New York 10010

14. Cost

The cost of the Micro-TOWER depends primarily upon the number of clients being tested in the group. Each client requires a complete set of equipment. An additional set of equipment is needed for the evaluator. Prices are available for group sizes from 4 to 30, for example:

Number of Persons Tested Per Group	Price
4	$ 7,943.00
7	9,023.00
10	10,103.00
20	13,703.00
30	17,303.00

The above prices include all equipment, forms to test 100 clients per work sample, one set of evaluator's equipment for each work sample, a cassette playback and a cue-stop system, table easels and photo books.

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Occupational Assessment/Evaluation System

(OA/ES)

1. Development

   a. Sponsor - The OA/ES was designed by Individualized Rehabilitation Programs, a private sector rehabilitation service.

   b. Target Group - The OA/ES was initially designed for assessing the vocational potential and interests of adults who were disabled as a result of accidents or illness. Thus, it was originally intended to be used with literate, recently disabled adults who have a work history. The developers state that the OA/ES can be used with anyone who has the potential for competitive employment. The OA/ES is mainly a worker trait group assessment which uses work samples as adjunct.

   c. Basis of the System - The entire system is based upon the fourth edition of the DOT, the Handbook for Analyzing Jobs, and The Guide for Occupational Exploration.

2. Organization

   a. Name and Number of Work Samples - The OA/ES consists of paper-and-pencil tests, inventories and checklists, apparatus tests, and work samples, which are optional. The instruments are as follows:

      Aptitudes:

         Intelligence - The Revised Beta II
         Verbal - Differential Aptitude Test (DAT) Verbal Reasoning (Form T)
         Numerical - DAT Numerical Ability (Form T)
         Spatial - DAT Space Relations Test (Form T)
         Form Perception - WAIS Block Design and Picture Completion Sub-tests
         Clerical Perception - DAT Clerical Speed and Accuracy
         Motor Coordination - An original apparatus test consisting of moving different sized washers from one bolt to another.
         Finger Dexterity - An apparatus test in which 15 small items are moved with tweezers from one bin to another. This is electronically scored.
         Manual Dexterity - Nuts and bolts are removed from one column and placed on another.
         Eye-Hand-Foot Coordination - Operating a small flex shaft and foot control in a precision drilling task.
         Color Discrimination - Pseudo-Isochromatic Plates

      Interests and Temperaments - These are assessed by having the client check activities and preferences that are taken directly from the DOT.

      Physical Capacity and Environmental Conditions - These are assessed by the evaluator and are taken directly from the DOT.

Work Samples: (1) Systems Planning, (2) File Management, (3) Order Request Processing, (4) Product Identification, (5) Grinding Operations, (6) Drill Press Operations, (7) Electro/Mechanical, (8) Welding, and (9) Itinerary Planning

b. Grouping of Work Samples - All aptitude tests must be administered as a unit. Each work sample is independent.

c. Manual - There are three manuals for the OA/ES. Many system details such as specific client instructions and set-up instructions for the work samples are lacking. In general, the manuals contain sketchy information and omit many system details. The developer, however, states that system details are covered in training. A high percentage of the first manual is directly from the Handbook for Analyzing Jobs and the DOT.

3. Physical Aspects

a. Packaging of Work Samples - The tests and paper-and-pencil instruments are available either in a console or packaged in a large briefcase. The nine work samples are packaged as a group.

b. Durability - The OA/ES unit is constructed out of 3/4 inch pressboard, formica laminated. The systems use common tools and provides a one year free-from-defects warranty.

c. Expendable Supplies - Expendable materials include test booklets and answer sheets, behavior recording forms for the work samples, and some supplies for the drill and soldering work samples. The manual contains no estimate of the cost of administration per client.

d. Replacement - Test items must be ordered from their respective publishers. Although not specifically stated, most parts and replacement items should be locally available.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is necessary. However, this reviewer estimates that between a sixth and eighth grade reading level is necessary to use the complete battery effectively.

b. Sequence of Work Sample Administration - The work samples follow the other measures. Work samples may be given in any order.

c. Client Involvement - This is not specified in the manual. Judging from the purpose of the OA/ES, the administration time, and the formal nature of the tests, the reviewer assumes there is little client involvement.

d. Evaluation Setting - The paper-and-pencil tests and the work samples lead to a formal testing atmosphere.

e. Time to Complete the Entire System - The entire battery, without work samples, can be given in "approximately four hours." If all work samples were administered, it would require a 25 to 60 hour period. A shorter version, the OA/ES II, which tests only for aptitudes, occupational aspirations, physical ability, and formal education can be given in three hours.

5. Administration

a. Procedures - The procedures for the aptitude tests are described in general terms. Aptitude tests and work samples do not contain specific set-up instructions and administration instructions are very vague at times.

b. Method of Instruction Giving - The paper-and-pencil tests require the client to read the instructions as the evaluator reads them aloud. Work samples and apparatus tests rely on evaluator oral instructions and demonstration.

c. Separation of Learning/Performance - Because the work samples are used for vocational exploration, this question is not relevant. There is minimum separation in the paper-and-pencil and apparatus tests.

d. Providing Assistance to Clients - The manuals do not contain instructions for giving assistance after timing has begun.

e. Repeating Work Samples - The work samples may be repeated at the discretion of the evaluator.

6. Scoring and Norms

a. Timing - During the paper-and-pencil aptitude tests, the client has a set period of time for each test. On the apparatus tests, time to completion is recorded; many have cutoff times. Note that the work samples are used mainly to obtain behavioral data and to provide vocational exploration.

b. Timing Intervals - On the paper-and-pencil tests, there are specific time limits. The client is not timed on the work samples but a cutoff time is used on some. Timing starts upon completion of the instructions.

c. Time Norms - Time norms are not used with this system.

d. Error Scoring - On the aptitude tests, all errors are checked against a scoring key or with optional computer scoring.

e. Scoring Aids - Scoring keys are used for the paper-and-pencil tests. When computer scoring is used, the following materials are provided: (1) summary sheet, (2) DAT score sheets, (3) Revised Beta Examination, (4) completed interest, etc., inventories, and (5) color test record form.

f. Quality Norms - There are no separate quality norms when appropriate errors are combined with time scores. See above.

g. Emphasis in Scoring - The system emphasizes the number of correct responses.

7. Observation of Clients

a. Work Performance - No work performance factors are used.

b. Work Behaviors - The Behavioral Summary Sheet lists nine work "behaviors," such as maturity, convincingness, and frustration, which are to be rated on a five point scale. There is an Evaluee Reporting Form which asks five questions about how the client liked the work sample; one of these forms is completed for each work sample.

c. Recording System - For each trait a check is made by the evaluator on a five point scale.

d. Frequency of Observation - This is not specified.

8. Reporting

a. Forms - A Summary Sheet is used for all assessment data, such as aptitudes, interests, temperaments and occupational aspirations. As stated above, a Behavioral Summary Sheet and Evaluee Reporting Form are used during the work sample process.

b. Final Report Format - There are two final reports. First, the OA/ES computer printout gives results of the aptitude tests, interests, physical requirements, environment, temperaments, GED, the client's Data-People-Things functions and qualifying Occupational Group Arrangements. Second, the work sample Summary of Results presents combined responses to the Behavioral Summary Sheet and Evaluee Reporting Form.

9. Utility

a. Vocational Exploration - The nine work samples are intended for the client's vocational explanation of the nine DOT Occupation Categories (e.g., Machine Trades Occupations, Service Occupations, and Professional Technical and Managerial Occupations). Yet the introductory material to each work sample does not give any vocational information about categories, or groups of jobs.

b. Vocational Recommendations - The computer printout gives the three digit occupation group, followed by its DOT number, and the number of specific jobs within the OGA. No specific job titles and DOT codes are listed.

c. Counselor Utilization - Both the manual and the work sample printouts state that this is a guidance instrument and is not to be used for vocational placement. Therefore, counselor utilization would

depend primarily upon the purpose of the assessment and the occupational knowledge of the individual counselor. The printout contains a statement that the results are not intended to "restrict career opportunities."

10. Training in the System

    a. Training Required - Training is required before this system will be sold.

    b. Training Available - Training is available from the manufacturer.

    c. Duration - Training time is one week with periodic reevaluation.

    d. Follow-up - Follow-up is available after purchase and training.

11. Technical Considerations

    a. Norm Base - Norms for the aptitude tests were developed on a sample of 231 working adults. All sample characteristics are clearly defined. These are general working population norms. Because the work samples emphasize vocational exploration, there are no time and quality norms. Finally, the manuals contain no information on the norming of the interest and temperaments.

    b. Reliability - The manual contains test and retest reliability coefficients for all of the aptitude tests. With sample sizes ranging between 106 and 109 and with times between one and six months, the test-retest reliabilities range from .86 to .99. Test-retest reliability coefficients were computed for 20 adults on the interest, temperaments, reasons for job satisfaction, and occupational aspirations. These coefficients range between .69 and .92. Both of these sets of data are suspect for several reasons: First, the test-retest reliability coefficients for the aptitude tests are unusually high. The user should be very suspicious of these. Second, the sample size of 20 is much too small to be used in any way other than a pilot study. Third, there is no reliability data reported for the work samples. In conclusion, these reliability coefficients should not be taken at face value.

    c. Validity - The manual states that the tests, work samples, and inventories are all based on content validation from the DOT. While tests taken from the WAIS and the Differential Aptitude Test have been successfully validated in numerous studies, the work sample developer presents no information on the content validation for neither the aptitude tests nor the work samples. In other words, there are no task analyses, job analyses, or any other concrete relationship to the world of work.

12. Reviewer's Summary and Comments - The major advantage of the OA/ES is that the system takes roughly four hours to administer and it is highly related to the Dictionary of Occupational Titles. Assessment systems having a short administration time and a solid basis in the DOT can be readily used by persons in private vocational rehabilitation as well as

the more traditional work evaluation settings. However, there are serious problems with this evaluation system. First, the manuals lack much needed information on the details of administration, set-up, scoring, and other procedures. Secondly, the interest inventory is a compilation of the 66 Occupational Divisions of the DOT. According to a manual supplement, when administering the interest instruments the evaluator is to read each of the 66 occupational divisions to the client and give examples of jobs in each area. This appears to be a cumbersome method of administration and is dependent upon the evaluator's examples and explanations, thus making standardization difficult. In other words, many uneducated persons simply would not be able to comprehend this instrument. The nine work samples are assumed to represent the nine occupational categories in the DOT. It is unreasonable to expect, for example, that one drill press operation work sample can represent the thousands and thousands of occupations in the machine trades category. Finally, the problems with the reliability and validity of the system must be weighed carefully, especially if the user plans to use the results in testimony.

13. Address

Individualized Rehabilitation Programs
42 West Park Avenue
Long Beach, New York 11561

14. Cost

Standard OA/ES Trait and Factor Battery $3,695.00.
Deluxe OA/ES Trait and Factor Battery (for group testing of up to five people) $4,295.00.
Combined OA/ES Trait and Factor Battery with work sample package (for group testing of up to six people) $5,840.00.

15. References

None available.

Philadelphia Jewish Employment and Vocational Service
Work Sample System

(JEVS)

1. Development

   a. Sponsor - Originally developed for the Manpower Administration of the U.S. Department of Labor for use in WIN and CEP programs, the JEVS has been refined by the Philadelphia Jewish Employment and Vocational Service.

   b. Target Group - Initially designed for the disadvantaged, the system has been used in the last several years as an assessment device for special needs populations.

   c. Basis of the System - The present basis is the Work Group system of the fourth edition of the Dictionary of Occupational Titles and the 1979 Guide for Occupational Exploration (GOE). The philosophical basis is a trait-factor approach between common aptitudes and behavioral demands of the Work Groups and work samples.

2. Organization

   a. Name and Number of Work Samples - The JEVS contains 28 different work samples. (The purchaser receives a total of 48 separate work samples, 20 of which are duplicates of the most used work samples.) The 28 work samples are referenced to 12 Work Groups. Most of the 28 work samples are used in more than one Group:

      05.03 - Engineering Technology - Condensing Principle
      05.05 - Craft Technology - Blouse/Vest Making, Pipe Assembly, Resistor Reading, Nail and Screw Sort, Lock Assembly, Telephone Assembly
      05.09 - Material Control - Computing Postage, Nail and Screw Sort, Filing by Numbers
      05.10 - Crafts - Resistor Reading, Telephone Assembly, Metal Square Fabrication, Ladder Assembly, Union Assembly
      05.12 - Elemental Work Mechanical - Hardware Assembly, Grommet Assembly
      06.02 - Production Work - Telephone Assembly, Hardware Assembly, Metal Square Fabrication, Grommet Assembly
      06.03 - Quality Control - Nail and Screw Sort, Collating Leather Samples, Nut Packing, Tile Sorting
      06.04 I - Elemental Work: Industrial - Belt Assembly, Grommet Assembly, Sign Making, Budgette Assembly
      06.04 II - Elemental Work: Industrial - Collating Leather Samples, Nut Packing, Washer Threading, Nut, Bolt and Washer Assembly
      07.02 - Mathematical Detail - Computing Postage, Payroll Computation, Adding Machine
      07.03 - Financial Detail - Computing Postage, Payroll Computation, Adding Machine

07.05 - Records Processing - Filing by Letters, Proofreading, Filing by Numbers
07.07 - Clerical Handling - Filing by Numbers, Rubber Stamping

b. Grouping of Work Samples - The work samples are organized into 12 Work Groups for reporting and interpretation purposes.

c. Manual - The Work Sample Evaluator's Handbook contains detailed administration and scoring instructions as well as numerous photographs to illustrate proper setup and common errors.

3. Physical Aspects

a. Packaging of the Work Samples - Each work sample is packaged individually; no tools or parts are shared with other samples.

b. Durability - The system uses common tools and materials that should be very durable. One possible exception may be the telephone.

c. Expendable Supplies - In addition to referral, report, and other forms, the major expendable supplies are: fabric, paper pads, sheet metal, and string. While these supplies should be available locally, they can also be purchased from the developer.

d. Replacement - Most tools and equipment can be locally purchased; other items (e.g., colored chips) are available from the developer.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required.

b. Sequence of Work Sample Administration - The work samples are administered in order of complexity beginning with Nuts, Bolts, and Washer Assembly and ending with Condensing Principle Drawing. If a client is obviously not able to complete the work samples at any one level, more complex work samples are usually not administered.

c. Client Involvement - A client orientation is given at the beginning of work sampling, a motivational group interview at the end of the first day and a structured Feedback interview at the completion. Since work sample administration resembles realistic work setting, interaction between client and evaluator occurs between work samples or during the above sessions.

d. Evaluation Setting - A realistic work atmosphere and setting are stressed in the manual.

e. Time to Complete the Entire System - The average client takes six or seven days for the 28 work samples.

5. Administration

a. Procedures - The layout is clearly described and photographs are used to insure proper setup. The materials listed for each work sample

are not listed at the beginning of the instructions for that work sample. The evaluator is provided with a list of materials for each work sample as detailed in the set-up instructions.

b. Method of Instruction Giving - All instructions are oral and some demonstration. Reading is required of the client only when it is a requirement in the job area being sampled.

c. Separation of Learning/Performance - Most of the work samples do not have a separate practice period. Typically, the evaluator gives the instructions while providing a demonstration. The client attempts the task without a prior period of practice. There are no set criteria to be met prior to timing. Thus, there is minimal separation of learning from performance.

d. Providing Assistance to Clients - Assistance can be given after the initial instruction period; but this results in lowering the client's final score. The manual contains detailed procedures for providing assistance and describes three levels of helping. Each level and each type are clearly defined. This emphasis of the analysis of the type of assistance is unique to the JEVS system.

e. Repeating Work Samples - Readministration is not recommended because it invalidates results.

6. Scoring and Norms

a. Timing - A time clock is used to stamp the starting and stopping time for each work sample. A separate time stamp slip is used for each work sample.

b. Timing Interval - The evaluator punches the time clock after instructions are given and the client punches the clock when the work sample is completed.

c. Time Norms - Time results are rated on a three-point scale based on the number of minutes to completion. The scale is taken from percentile scores.

d. Error Scoring - Most work samples use a random check of items that are compared to carefully defined scoring criteria; many use photographs to illustrate quality standards. Assistance points are also incorporated into the error scoring procedures.

e. Scoring Aids - Minimal use is made of scoring aids.

f. Quality Norms - Quality is rated using a three-point scale based on the number of counted errors.

g. Emphasis in Scoring - Time and quality are given equal weight.

7. Observation of Clients

   a. Work Performance - Sixteen specific factors (e.g., size discrimination, form perception) and four more general factors (e.g., accuracy, neatness) are specified for the system; each work sample has certain factors listed that are to be observed. The system stresses the recording of accurate behavioral observations.

   b. Work Behaviors - The system carefully lists and defines many work related behaviors that are to be carefully observed. For example, in writing observations about communication, articulation, tone of voice, and grammatical usage are to be noted. Some other behaviors are cooperativeness with co-workers and supervisors, reaction to criticism, and frustration tolerance.

   c. Recording Systems - Many of the work performance factors are rated on a three-point scale, with all ratings clearly defined and illustrated.

   d. Frequency of Observation - The system uses extensive observations. Observation of defined work factors is required for each work sample; these are summarized daily.

8. Reporting

   a. Forms - Standardized forms are included for: reporting the results of each work sample, daily observation summary, feedback interview and a final report.

   b. Final Report Format - The well organized standardized format includes some ranking of work sample performance, recommended Work Groups and rationale, and extensive written comments on performance and behavior.

9. Utility

   a. Vocational Exploration - Client vocational exploration is seriously limited by two factors: (1) many of the work samples tend to be abstract, and (2) there is no orientation relating the work samples to jobs.

   b. Vocational Recommendations - The final report has a space for two Work Groups that are suggested for additional planning. The recommendations are related to the fourth edition of the DOT and the GOE and are geared for both training and job placement.

   c. Counselor Utilization - The system and the final report are oriented toward the counselor; however, counselor familiarity with the DOT and GOE is necessary for optimal counselor use.

10. Training Required

   a. Training Required - Yes

   b. Training Available - Yes

c. Duration - One week; usually held in Philadelphia. Regional training is available under certain conditions.

d. Follow-up - One technical assistance visit is made to assist with the establishment of the system and the maintenance of standardized procedures.

11. Technical Consideration

a. Norm Base - The system was renormed in 1975 on a total population of over 1,100 clients in 32 facilities throughout the U.S. Time and quality norms are reported for the total sample as well as separate norms by sex, and for different client groups, vocational rehabilitation, manpower, Goodwill, schools, and special schools for the mentally retarded. The norms are given in the 1-2-3 ratings only; no means, standard deviations or percentile cutoffs are given. Thus, the user has no idea of what the distribution is. Sample characteristics are not adequately described.

b. Reliability - No published data are available.

c. Validity - Although the initial study of the system gave favorable evidence, results of studies done by the U.S. Department of Labor have not been released to the public. Research by Nadolsky (1973) concludes that the system is valid for evaluation of immediate employment potential. There are no recent data available on validation.

12. Reviewer's Summary and Comments - The JEVS System is a highly standardized and well integrated procedure for client evaluation based on 12 of the Work Groups of the GOE. The strongest points of the system are its stress upon careful observation and accurate recording of work behaviors and performance factors. The use of a trait-and-factor approach ties in well with the assessment of specific abilities. The major problems with the system appear to be the abstract nature of many of the work samples, which hinders vocational exploration and the lack of job information presented to the client. The system is best used when a thorough evaluation of the client's potential is desired.

12. Address

Vocational Research Institute
Jewish Employment and Vocational Service
1700 Sansom Street, 9th Floor
Philadelphia, Pennsylvania 19103

14. Cost

$8,872.00 includes all work samples, forms, and tuition for training one person in Philadelphia. The cost of transportation and living expenses for the person to be trained are not included in the price. One on site consultation at no charge, other than the consultant's travel expenses, may be required.

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Prep Work Samples

1. Development

   a. Sponsor - These work samples were developed by Prep, Inc., and are one of the four parts of the Comprehensive Occupational Assessment System (COATS).

   b. Target Group - They were originally designed for use with special needs programs. Presently, the system is also being implemented in corrections, secondary and vocational education, manpower programs, and alternative education programs.

   c. Basis of the System - The 15 Career Clusters identified by the United States Office of Education (USOE) are the basis for development of the Prep Work Samples. Each of the clusters was subdivided into 105 job families. The content of the job families is identified through job analysis and data contained within the third edition of the Dictionary of Occupational Titles.

2. Organization

   a. Name and Number of Work Samples - The 27 work samples now available are: (1) Drafting, (2) Clerical/Office, (3) Metal Construction, (4) Sales, (5) Wood Construction, (6) Food Preparation, (7) Medical Services, (8) Travel Services, (9) Barbering/Cosmetology, (10) Small Engines, (11) Masonry, (12) Electrical, (13) Police Science, (14) Electronics, (15) Automotive, (16) Commercial Art, (17) Nutrition, (18) Bookkeeping, (19) Fire Science, (20) Extraction Technology, (21) Clothing & Textiles, (22) Real Estate, (23) Communication Services, (24) Refrigeration, (25) Computer Technology, (26) Solar Technology, and (27) Machine Trades.

   b. Grouping of Work Samples - Each work sample is independently administered and scored. A summary of results on all work samples is usually prepared after the evaluation is completed.

   c. Manual - The general manual describes the theoretical underpinnings and information which applies to all work samples. A specific manual is provided with the individual work samples. Detailed instructions for evaluation points, set-up procedures, participant prerequisites, and other relevant information is contained in each specific manual. All portions of the manual are contained in a loose-leaf binder.

3. Physical Aspects

   a. Packaging of Work Samples - Each of the 27 work samples is separately packaged in a portable container. Most nonconsumable supplies are stored inside the container. When not in use, the work samples can be easily stored. The work samples can be set up on a sturdy table or in a carrel.

b. Durability - The work sample containers are made of 3/4 inch birch plywood and formica. Quality tools and equipment are used (e.g., Black & Decker drills; Stanley tools). The Labelle audiovisual projectors, when regularly maintained, require minimal repairs.

c. Expendable Supplies - Each work sample uses consumable supplies. These supplies include such items as printed circuit boards, wigs, wood, baking items, oil, brake fluid, etc. Consumable packages for assessing ten people are available through Prep, Inc. The cost of these packages range from $9.00 (Travel Services) to $200.00 (Commercial Art). The average cost is $65.00 per work sample (or $6.50 per client) if purchased through the manufacturer.

d. Replacement - With the exception of the Individual Report Form, which must be ordered from Prep, Inc., all expendable supplies may be purchased locally.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required. However, the evaluator should check the prerequisites mentioned for each work sample to avoid unnecessary frustration on the part of the client.

b. Sequence of Work Sample Administration - There is no predetermined sequence of administration. The order and number of work samples performed is decided by the evaluator.

c. Client Involvement - During the assessment process, the evaluator is required to make and record behavioral observations as well as performance observations. These observations are recorded on the Individual Report Form. At the conclusion of the work sample, the evaluator transfers the client's self-rating of interest, difficulty and performance onto the Individual Report Form. The results of the client's and evaluator's ratings should be reviewed and the client given a copy of the Individual Report Form.

d. Evaluation Setting - The majority of the equipment replicates industry. However, since the assessment usually takes place in a room with tables, carrels, and audiovisual projectors, a classroom atmosphere prevails.

e. Time to Complete the Entire System - The average length of time to complete one work sample is two hours. The shortest length of time needed is 38 minutes for Fire Science, and the longest time is three hours and 33 minutes for Electrical. To complete all 27 work samples would take an estimated 54 hours. However, in actual use, this many work samples would not be administered.

5. Administration

a. Procedures - The materials required and the layout are clearly described.

b. Method of Instruction Giving - Instructions are presented with an audiovisual Labelle format. This format uses an eight track audio tape synchronized with a 16mm filmstrip. Automatic stop pulses are programed throughout each work sample allowing the client to complete a performance and work at their own pace.

c. Separation of Learning/Performance - For each task on which the client will be assessed, a demonstration of the task is always given prior to the evaluation point. Many times the client is afforded the opportunity to practice the task first. Most client instruction does not require a criteria to be reached before proceeding from the practice period to the performance period. Thus, there is minimal separation of learning/performance.

d. Providing Assistance to the Client - If a client is having difficulties with a task, the manual recommends that the evaluator record this difficulty. If the client cannot complete the task, the work should be evaluated as less than acceptable. The evaluator may assist the client with a task if the remainder of the work sample is based upon the successful completion of a task.

e. Repeating Work Samples - Generally, work samples are not readministered unless the client expresses a desire.

6. Scoring and Norms

a. Timing - Time is usually recorded, but it has no bearing on the evaluation except as an indication of severely limited ability.

b. Timing Intervals - The client is timed during the entire duration of the work sample. There is available through the manufacturer average times for completion for each work sample and possible stopping points during each work sample's administration.

c. Time Norms - The times are reported on the Individual Report Form. The evaluator records the total work time. Separate time norms are not used.

d. Error Scoring - After completion, the work sample results are checked against carefully defined scoring criteria. The results of each performance are judged separately on a five point acceptability scale. An overall rating (high, medium, low) is assigned according to the overall acceptability of all performances included in each work sample. A rating is also assigned for behavioral observations.

e. Scoring Aids - Some scoring aids are used. Overlays are used for the drawings completed in the Drafting Work Sample. Pages with correct responses are supplied with each work sample which requires written work.

f. Quality Norms - The acceptability ratings are based upon industrial standards. The performances must be completed within certain tolerances to receive acceptable ratings. Exact tolerances are described for each work sample in the specific manuals.

g. Emphasis in Scoring - Quality scores for work performance and work behavior and the client's self-rating is emphasized.

7. Observation of Clients

a. Work Performance - No work performance factors are listed on the Individual Report Form.

b. Work Behaviors - There are eight behaviors which are observed and recorded as part of the evaluation. They are: relationship to authority; relationship to co-workers; tolerance for frustration; acceptance of criticism; concern for property; work efficiency; reliability; and appropriateness of appearance. Behavioral definitions are not presented in the manual.

c. Recording System - The Individual Report Form describes high, medium and low behaviors demonstrated for each of the work behaviors. A rating is assigned for each behavior and an average is taken for an overall rating.

d. Frequency of Observation - No predetermined schedule exists. Frequency will vary according to the number of clients being evaluated as well as the frequency of work performance evaluations.

8. Reporting

a. Form - Two forms are used. The Self-Rating Form allows the client to record his/her own interests, difficulties and self-appraisal of work. The Individual Report Form is completed by the evaluator. Information reported includes Evaluator's Rating of Work, Performance, Work Rate, and Work Behavior.

b. Final Report Format - The Individual Report Form becomes part of the final report. The evaluator should transfer results from the Self-Rating Form. A narrative summary of the results should be written at the top of the Report Form. The carbon copy of the Report Form should be given to the client. This gives the client access to assessment results along with lists of tools and equipment used, occupational information, and skills required. A composite of all work sample results is usually presented in a narrative format.

9. Utility

a. Vocational Exploration - The client has a wealth of career information available in the work samples. Occupational information is presented on the audiovisual cartridge. All tasks are shown in the work environment.

b. Vocational Recommendations - Recommendations could be made after assessment and counseling. Primarily, the recommendations are based on job families or individual jobs (DOT) represented by the work samples.

c. Counselor Utilization - The report forms generated by completion of each work sample can be used by counselors and clients alike. As mentioned previously, the reverse side of the form contains guidance information. The report lists the tasks performed and the degree of proficiency reached.

10. Training in the System

a. Training Required - No; but it is strongly recommended.

b. Training Available - Training is available and can be held either at Prep, Inc. or on site.

c. Duration - One full day of work sample training is sufficient.

d. Follow-up - Yes; customers are regularly offered refresher training or follow-up.

11. Technical Considerations

a. Norm Base - The criteria of acceptability used for norming and industrial quality standards. Client's work is judged against stated preestablished levels. Time norms are not used.

b. Reliability - Since the work samples have been recently revised, new reliability studies will be undertaken to determine test-retest correlations. No data are given in the manuals.

c. Validity - Work sample validity is based solely on content validity, which consists of job analysis and the DOT. The methods are logical and result in a group of tasks that represent occupations within a particular job grouping.

12. Reviewer's Summary and Comments - The Prep Work Samples are well designed modules that can be used with a wide variety of handicapped groups. The use of an audiovisual method of instruction permits the presentation of occupational information as well as the close monitoring of client progress. The manual clearly outlines the tasks that comprise each work sample and how each task is assessed. One of the better features of the system is that each sample was designed around tasks common to several related occupations instead of attempting to duplicate all tasks common to only one job. The construction and tools used in the Prep Work Samples give the impression of long use if routine maintenance is performed. There are two potential problems in using these work samples with a rehabilitation population: (1) the use of the audiovisual format may present some problems for persons with hearing, visual and/or learning handicaps, and (2) although designed in part for special needs students, the system does not seem appropriate for some lower functioning mentally retarded persons.

13. Address

Prep, Inc.
1007 Whitehead Road Extension
Trenton, New Jersey 08638

14. Cost

Prices of work samples range from $480.00 (Fire Science and Police Science) to $3,975.00 (Computer Technology); the average price is $1,202.50. Each work sample comes with tools, cartridges, specific manual, storage cube, and all materials and supplies for assessing 10 clients. The cost of the Self-Rating Form and Individual Report Form is $1.25.

15. References

Micali, J. J., Comprehension levels of the COATS and Singer Vocational Systems: Implications for use with the retarded. Vocational Evaluation and Work Adjustment Bulletin, 1977, 10(3), 28-31.

Pisauro, M. L., Comprehensive Occupational Assessment and Training System. In A. Sax (Ed.), Innovations in Vocational Evaluation and Work Adjustment. Vocational Evaluation and Work Adjustment Bulletin, 1976, 9(3), 39-45.

Pre-Vocational Readiness Battery

(Valpar 17)

1. Development

   a. Sponsor - Valpar #17 was developed by Valpar International.

   b. Target Group - The battery is aimed at assessing the functional skills of mentally retarded persons.

   c. Basis of the System - The manual contains no discussion on the basis of the system.

2. Organization

   a. Name and Number of Work Samples - The system contains five areas, each of which has several separate subtests:

      1. Development Assessment - contains four parts which are "simple, functional, non-medical measures of physical and mental abilities": (a) Patterning/Color Discrimination Manipulation, (b) Manual Coordination, (c) Work Range/Dynamic Strength/Walking and (d) Matching/Vocational Knowledge/Measurement.
      2. Workshop Evaluation - A simulated assembly process during which three clients use a three step assembly process. A fourth person (either client or evaluator) acts as an inspector.
      3. Vocational Interest Screening - A sound/slide interest assessment in which the client compares two jobs. There are six area scores: social service, sales, machine operation, office work/clerical, physical sciences, and outdoor.
      4. Social/Interpersonal Skills - This consists of a two page form containing descriptions of commonly found barriers to employment. Four major areas are covered: (1) personal skills, (2) socialization, (3) aggravating behaviors, and (4) work related skills.
      5. Independent Living Skills - An assessment of: (1) transportation, (2) money handling, (3) grooming, and (4) living environments. The transportation and money handling areas contain three levels. Simulation and gaming techniques are used heavily in this area.

   b. Grouping of Work Samples - The subtests are grouped according to the five areas given above.

   c. There is an overall manual and a separate manual for each area, plus a sixth manual that contains norms. Each manual is well organized and contains most setup, administration, and scoring instructions. The scoring instruction examples are unusually detailed.

3. Physical Aspects

   a. Packaging of the Work Samples - Equipment for each of the five areas is packaged separately.

b. Durability - As with other Valpar work samples, all equipment is very durable. Construction is fiberboard laminated with formica.

c. Expendable Supplies - Aside from the numerous forms and recording sheets, the system requires no expendable supplies.

d. Replacement - Forms can be ordered from the developer or may be reproduced locally.

4. Work Evaluation Process

a. Preliminary Screening - Subtest One: Developmental Assessment is used as a preliminary screening to determine the evaluee's general physical strength, mobility, and instruction following skills.

b. Sequence of Work Sample Administration - Information presented by the developer states that the five sections can be given in any order. However, because the method of instruction giving for the rest of Valpar #17 is at least partially determined during the Development Assessment section, this part should be given first.

c. Client Involvement - While the degree of client involvement with the evaluator varies with the section, in general there is a considerable degree of client-evaluator contact. Most of the tasks are administered individually. The manuals do not contain any discussion on procedures for feedback and for sharing the results with the client either during or after completion of the five areas.

d. Evaluation Setting - The setting is not specified. However, the use of the various sections implies that a formal testing situation is created.

e. Time to Complete the Entire System - While the time varies with the population tested, the general manual estimates 5½ hours for the entire battery.

5. Administration

a. Procedures - Administration procedures layout, materials needed, and general instructions are clearly given in the manuals.

b. Method of Instruction Giving - Instructions are given using a variety of methods. During the administration of the Development Assessment section, the evaluator is first to determine at which of three possible levels the client functions: (1) verbal, (2) verbal plus demonstration, and (3) verbal plus demonstration with a sample to follow. The appropriate level is used throughout the remainder of the Valpar #17. The Vocational Interest Screening uses a slide/cassette instruction method. Independent Living Skills uses a combination of gaming and comparing pictures with accompanying verbal instructions.

c. Separation of Learning/Performance - In the Workshop Evaluation part, some separation of learning from performance occurs; the client is

corrected if he/she makes a mistake during the instruction period. However, there are no set criteria. This section of the outline is not appropriate for the other four parts. Each of these areas is an assessment of knowledge and of the ability to learn.

d. Providing Assistance to the Client - The evaluator is to make certain that the client can perform the task or activity. In most parts, extra assistance would not interfere with the results. However, this area is one of the few areas not clearly covered in the manuals.

e. Repeating Work Samples - Readministration is strongly recommended when it would facilitate either program evaluation or documentation of changes in client skills over a period of time for the purpose of adjustment areas of emphasis in training.

6. Scoring and Norms

a. Time Scores - Except for one task in the Development Assessment Unit, no time scores are recorded; all parts are untimed except the Workshop Evaluation. In this part, the number of units assembled in 12 minutes is the score.

b. Timing Interval - In the Workshop Evaluation, the 12 minute interval begins after the clients have understood the instructions and have practiced.

c. Time Norms - No time norms are used, except for the one subtest noted above.

d. Error Scoring - All parts are scored on the number of correct responses, except Interpersonal-Social Skills. In the Developmental Assessment Unit, most tasks are scored by giving either 4, 2, 1 or 0 points; many of the physical capacity evaluations record the number of pounds lifted or moved. The Vocational Interest Screening uses the number of choices in the six work areas. The Social-Interpersonal Skills uses a negative score in which the more skills and/or behaviors that are lacking, the greater the scores in each of the four areas. Finally, the numerous scored activities in the Independent Living Skills assign one or more points to each correct response.

e. Scoring Aids - No scoring aids are used.

f. Quality Norms - The only "quality norms," as this term is used in work sample scoring, are those for the Workshop Evaluation. The other four sections use norms based on the number of total points.

g. Emphasis in Scoring - The scoring emphasis is on the number of "correct" or appropriate responses.

7. Observation of Clients

a. Work Performance - None of the five sections identify any specific work performance factors.

b. Work Behaviors - The Interpersonal-Social Skills area contains a section on work related skills. Some of the specific items are (1) safety, (2) promptness, (3) following directions, and (4) work completion. Some of these skills are not defined in behavior terms. The Workshop Evaluatior contains the following four items: (1) corrected work, (2) work backed up, (3) on task, and (4) work cohesively with others. Each is rated on a three-point scale. Other areas include space on forms for writing in general comments and observations.

c. Recording System - For the Interpersonal-Social Skills, "behaviors" are rated using 0, 2, or 4 as a weight. The Workshop Evaluation uses a three-point scale of never, sometimes, and consistently.

d. Frequency of Observation - This point is really only applicable to the Workshop Evaluation section; the manual does not specify the frequency of observation.

8. Reporting

a. Forms - Each of the five areas uses standardized, well-designed forms for recording responses and for scoring. Some of the forms include black and white reproductions of the stimulus slides and the transportation gaming exercise.

b. Final Report Format - This is unspecified due to the wide variety of settings and applications for which the work sample was designed. However, the Individual Exit Profile provides a summary of all scores in a manner which transfers to individual education plans used in an educational setting. This same form provides a functional summary around which the narrative section of most reporting formats can be organized.

9. Utility

a. Vocational Exploration - Two parts of the Valpar #17 offer some direct vocational exploration: Vocational Interest Screening and Workshop Evaluation. The Interest part allows for some exploration and provides some occupational information. The Workshop Evaluation, as a simulated assembly task, could give the client some concept of production line work.

b. Vocational Recommendations - Each of the sections provides data that can be used to provide vocational recommendations. The specific recommendations would be based upon the final reporting format used.

c. Counselor Utilization - The battery is designed specifically to facilitate counseling and/or training after assessment. The scoring format specifies goals and potentials by providing counselor insight into relative strengths and weaknesses. It also provides score sheets with pictorial representations of the work performed in that task to remind both the counselor and the evaluee of the activity and performance in each area. Each subtest also provides both a possible means of remediation or training and a format for reassessment to gauge improvements over time.

10. Training in the System

    a. Training Required - No training is required.

    b. Training Available - Formal training is available.

    c. Duration - At least one day or more, this depends upon evaluator needs.

    d. Follow-up - As requested by the user.

11. Technical Considerations

    a. Norm Base - A separate norms manual contains what the developers call "research norms" on 10 different groups (e.g., competitive employment, sheltered workshop, activity center, and homebound employment). The raw scores for each subtest are converted to a single percentile score. (The manual contains no information on how this percential score was developed.) Over the percentile score on each table are three normal distribution curves, which represent three combinations of the norming groups. The user can apparently roughly determine where on these curves a person falls. Because there are no means, standard deviations, sample sizes, or descriptions of the samples available, it is impossible for this reviewer to make any comment regarding the norms.

    b. Reliability - No data presently available.

    c. Validity - No data presently available.

12. Reviewer's Summary and Comments - Valpar #17 is intended to be an assessment of the variables that must be considered when assessing a mentally retarded person's interests, vocational skills, and social maturity. The system is designed to be used by a person who is not trained in psychology, medicine, or occupational therapy. The system is well designed, attractive, and novel in many ways. The use of audiovisual and gaming materials will make it attractive to clients as well as evaluators. Data collection forms are unusually well designed. The major problems are in the technical areas. The manuals contain no background as to why certain components were selected, no relationship to previous work done in this field. No data are given on reliability and validity; there is not even a statement on these two factors. The norm data are impossible to interpret without additional information. In summary, this is a very attractive assessment device, but much more needs to be known about it.

13. Address

    Valpar International
    3801 E. 34th Street, Suite 105
    Tucson, Arizona 85713

14. Cost - $3,200

15. References

    None presently available.

System for Assessment and Group Evaluation

(SAGE)

1. Development

   a. Sponsor - The SAGE was originally developed by Schabacher and Associates and Creative Development Associates, Inc.; rights are presently owned by the Train-Ease Corporation.

   b. Target Group - The SAGE is aimed at junior high school, secondary, and post-secondary students and is especially useful with the disadvantaged. The system can be used with borderline mentally retarded and with many handicapped persons with some commonsense modifications.

   c. Basis of the System - The fourth edition of the DOT, the Guide for Occupational Exploration and publications* by the Appalachia Educational Laboratory serve as the basis.

2. Organization

   a. Name and Number of Work Samples - The system consists of four different components that when used together are intended to give the user a complete picture of the client on all the major variables contained in the DOT. The four components are defined below:

      (1) Vocational Interest Inventory (VII) - This is an untimed paper-and-pencil inventory which measures the client's interests in 12 interest areas taken from the Guide for Occupational Exploration: artistic, scientific, plants and animals, protective, mechanical, industrial, business detail, selling, accommodating, humanitarian, leading-influencing, and physical performing. For each of the 152 items, the client can make two possible responses--circle one response if he/she likes the activity; circle another response if he/she has done the activity. Each item uses the following format:

         Puts parts on a car
         Get people to like your ideas
         Make beds in a hospital

      (2) Vocational Aptitude Battery (VAB) - The VAB uses a combination of paper-and-pencil tests and isolated trait work samples (i.e., apparatus tests) to measure 11 aptitudes listed in the DOT:

         Verbal - A paper-and-pencil test using a stimulus word with four sets of response words. The person chooses the response word that is the same or opposite in meaning as the stimulus word.
         Numerical - This paper-and-pencil test contains two subtests--computational items and word problems.

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*Worker Trait Group Guide; Career Information System Guide

General - A paper-and-pencil test, using multiple choice format, contains verbal, arithmetic reasoning, and spatial items.

Form Perception - This multiple choice test uses several large colored pages of actual tools and materials; the client must find the tool or material that matches each stimulus photograph.

Color Discrimination - A multiple choice test in which a large photograph of standard color samples has been mounted on a board. The client must find the color sample that matches the stimulus.

Clerical Perception - Consisting of four subtests, two multiple choice and two performance, two booklets are checked to determine if names or numbers are the same; cards are sorted by numerical or alphabetical order. An ultraviolet light checks for the correct order.

Spatial - This performance test requires the client to reproduce patterns of varied sized gears on a console; the stimulus is a photograph.

Manual Dexterity - In the test large conduit fittings are assembled on a special console. No tools are used; the client must use his/her entire hands and wrists to perform the task.

Finger Dexterity - Small specially modified compression unions are assembled on 3/16 inch stainless steel pins. No tools are used.

Motor Coordination - "A manipulative test that requires testees to perceive a light flashing on a large electronic control board and within a half second period of time push or hit a button under the light with either hand." One hundred lights flash per minute. This is self-timing and self-scoring.

Eye-Hand-Foot Coordination - Using a test similar to that used for World War II and Korean War pilot selection, the client uses a stick and foot pedals to match three sets of lights showing on a console. The unit provides for a trial and test which is self-timed and self-scoring.

(3) Cognitive and Conceptual Abilities Test (C-CAT) - This is a multiple choice item paper-and-pencil test that measures the six levels of General Educational Development (GED). There are separate subtests for (1) reasoning, (2) mathematical, and (3) language. Results are converted into the scale score from 1 to 6.

(4) Assessment of Work Attitudes (AWA) - The AWA is an untimed scale containing 30 items covering 20 common work attitude categories like workmanship, deferred gratification and persistence as they relate to a specific work related situation. A typical item is the following:

How many people believe in always being on time for work?

a. 1 out of 5
b. 2 out of 5
c. 3 out of 5
d. 4 out of 5

The theory underlying the development and inclusion of this instrument in the system is that abilities in and of themselves are not sufficient to insure job satisfaction. The prospective employee must also bring to the job an appropriate set of attitudes.

b. Grouping of Work Samples - The tests, attitude scales, and interest inventory are grouped into the four areas outlined above.

c. Manual - The loose-leaf binder contains all system details. There is a separate section for each of the four parts. Each section contains information on development of the section, instructions for clients and administrators, scoring, interpretation information, and research results.

3. Physical Aspects

a. Packaging of the Work Samples - Each of the testing apparatus is packaged independently.

b. Durability - While no data on durability are available, the plastic cases give the impression of being very durable.

c. Expendable Supplies - There are no consumable supplies except for forms and answer sheets; these may be produced locally.

d. Replacement - An 800 telephone number is supplied for replacement or service. To maintain standardization, users should check with SAGE before using local parts.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is used. The SAGE can be considered as the first step in a vocational evaluation.

b. Sequence of Work Sample Administration - The four components do not have to be given in any order. Within the VAB, the aptitude tests can be given in any order or on different days.

c. Client Involvement - There would appear to be little client involvement during testing; client involvement after testing centers around the explanation of a profile form.

d. Evaluation Setting - The paper-and-pencil and apparatus tests will remind the client that he/she is in a formalized testing situation.

e. Time to Complete Entire System - The developer states that several persons can complete the entire system in about four hours. The system provides for multiple administration; in the VAB there is enough equipment/material to assess 23 people simultaneously.

5. Administration

a. Procedures - There is a separate manual for each test and scale. The VAB tests have two manuals--one for electronic scoring and one for manual scoring. These manuals are all organized around a common table of contents; most system details are specified.

b. Method of Instruction Giving - Each instrument can either be self-administered (if the client reads at the fourth grade level) or by having the instructions read aloud. The VII uses a titled filmstrip and cassette tape which contains instructions as well as the test items.

c. Separation of Learning/Performance - The C-CAT and the VAB tests use the following procedure--initial instructions, timed practice exercises, and the actual test. Thus, there is a clear separation of learning from performance. One feature of the SAGE is that it contains a higher percentage of practice items in proportion to the actual test items than do most tests.

d. Providing Assistance to the Client - The manual is not specific on this point; apparently the instructor makes certain that after the practice exercises there are no problems and does not interrupt actual test.

e. Repeating Work Samples - Readministration is permitted if evaluator believes results are not valid. According to the developer, the SAGE may be used for pre and post testing.

6. Scoring and Norms

a. Timing - The C-CAT and VAB are timed using an electric timer, controlled by the evaluator or the client. A buzzer and light mark the completion of each timed period. A multi-choice electronic score recorder and timer are also available. The Eye-Hand-Foot and Motor Coordination tests contain built in timers.

b. Timing Interval - For each test there is a specific set time for both the practice items and the actual test items. All testing activity is controlled by specific time lengths.

c. Time Norms - For the VAB and C-CAT the number of correct responses is converted to a scale score of one to five or six. These scores correspond to the six aptitude and five GED levels found in the DOT. The AWA is scored using a Likert-type scale of from 1 to 4. Item values are totaled and the resulting score compared to three scoring ranges--job ready, "?," doubtful. In the VII the number of items chosen in each of the 12 interest areas are totaled and compared to preselected arbitrary cut-off points.

d. Error Scoring - This is not relevant; no errors are recorded.

e. Scoring Aids - Scoring keys are used with all paper-and pencil tests. Several units have built in self-timing and scoring devices. The Scor-O-Matics provide for self-scoring and timing of all multiple choice tests except the C-CAT.

f. Quality Norms - Not relevant; no errors are recorded.

g. Emphasis in Scoring - Not relevant because only one type of score, a correct response, is recorded.

7. Observation of Clients

a. Work Performance

b. Work Behaviors

c. Recording System

d. Frequency of Observation

} Presently no procedures for behavior observation are available. According to the manufacturer, an observation form is being developed and will be available by late 1982.

8. Reporting

a. Forms - The SAGE uses a variety of forms: answer sheets, scoring keys, conversion tables, and an objective assessment profile. All forms are internally consistent with each other.

b. Final Report Format - The final report is a profile sheet giving VAB, C-CAT, and AWA scores. The four highest interest areas are also listed. Individual occupations are listed under each interest area and the job demands are compared with the abilities of the client. There is no narrative report. It must be remembered that the system is designed to be used for preliminary assessment and counseling.

9. Utility

a. Vocational Exploration - The SAGE provides minimal vocational experiences; there are no hands-on materials and little vocational explanation given prior to testing.

b. Vocational Recommendations - The SAGE Objective Assessment Profile contains specific job recommendations by DOT title and code. The data base for the SAGE contains aptitudes and GED results for 487 commonly held occupations. An additional manual provides information on matching over 12,099 job titles. The system can also be used with other commercial systems (there are cross-reference charts relating the aptitudes as measured by the SAGE to JEVS, Micro-TOWER, Project Discovery, SAVE, Valpar, Singer, VIEWS, and VITAS), with job-site training, further testing, etc.

c. Counselor Utilization - Counselor Utilization would depend upon two variables: (1) How the SAGE is integrated with other vocational

evaluation tools, and (2) How well counselor knows and uses the DOT and related data. A software package (J.O.B.S.) is available for on-site job matching.

10. Training in the System

a. Training Required - No training is required.

b. Training Available - On-site training is available.

c. Duration - Training is for one day.

d. Follow-up - Dealer provides toll free number to answer any questions.

11. Technical Considerations

a. Norm Base - VAB research norms are available on males, females, handicapped, "normals." Basic statistics are given for Job Corps trainees, cooperative education students, males and females. The AWA research population was 145 cooperative education students. The C-CAT was developed on two groups of high school students and one group of adults. All samples were taken from the mid-Atlantic or southern states; sample characteristics are fairly well-defined. The major problem is that these research norms were developed on small samples, in most cases of under 100. Developer will help user develop local norms at no charge.

b. Reliability - Test-retest coefficients and standard errors of measurement were used to determine reliability for most of the tests. Most of the KR-20 reliability coefficients are reasonably high.

c. Validity - A variety of item analysis data and validity data are presented for each of the four parts. Validity data includes correlations with ratings and other tests; the majority of these are very acceptable levels.

12. Reviewer's Summary and Comments

The SAGE is not a traditional work sample system, but rather is a combination paper-and-pencil test and isolated trait work sample battery which can be administered in about four hours. The SAGE can be used by itself or as a screening device given prior to a vocational evaluation. The developer has gone as far as to provide charts of the relationship between SAGE and the more popular commercial work sample systems. Because it is basically an ability assessment device, the SAGE should be supplemented with appropriate methods of assessing client behavior. Overall, the SAGE gives the initial appearance of a well-planned assessment tool that is aimed mostly at secondary school students, especially the disadvantaged. The major advantages of the system are its relationship to the DOT, its relatively short administration time, and its apparent flexibility when used in combination with other systems. At this time, the major flaw relates to sample size. The manual contains detailed descriptions of the procedures and methods used to develop each device. While these statistical methods are very appropriate, the manual uses the term "develop-

mental," which is in accordance with the standards of the American Psychological Association. It is hoped that the SAGE developers are willing to continue data collection and analysis with larger samples.

Finally, while the SAGE is not specifically designed for a handicapped population, it can be used with most types of disabilities by making a few commonsense modifications.

13. Address

Progressive Evaluation Systems Corp.
21 Paulding Street
Pleasantville, New York 10570
(800) 431-2016

14. Cost

The cost per component is:

VAB	$4,995.00
VII	500.00
C-CAT	500.00
AWA	500.00
	$6,495.00

Other costs are:

On-site training (travel expenses not included)	$500.00
Additional SCOR-O-MATICS	175.00
Additional Electronic Timers	69.50
SAGE Carrying Cases	650.00
J.O.B.S. (Job Opportunity Based Search)	950.00

15. References

Botterbusch, K. F., SAGE - System of assessment and group evaluation. Vocational Evaluation and Work Adjustment Bulletin, 1982, 15(1), 32-34.

Talent Assessment Programs

(TAP)

1. Development

   a. Sponsor - The system was developed by Talent Assessment Programs of Des Moines, Iowa. It is now marketed by Talent Assessment, Inc., Jacksonville, Florida.

   b. Target Group - TAP can be used with a wide range of populations and all mental levels above trainable mentally retarded. It has been used with disadvantaged, handicapped and "regular" students and adults.

   c. Basis of the System - The results are organized according to specific jobs found in the DOT or specific clusters of jobs listed in the Guide to Occupational Exploration.

2. Organization

   a. Name and Number of Work Samples - Ten tests are included in the system:

      (1) Structural and Mechanical Visualization; (2) Discrimination by Size and Shape; (3) Discrimination by Color; (4) Tactile Discrimination; (5) Fine Dexterity without Tools; (6) Gross Dexterity without Tools; (7) Fine Dexterity with Tools; (8) Gross Dexterity with Tools; (9) Flowpath Visualization; and (10) Retention of Structural and Mechanical Detail.

   b. Grouping of Work Samples - Each test is administered and scored independently.

   c. Manual - The manual contains general directions, scoring information, norms tables as well as several examples of profiles. Specific instructions are given as to materials, set-up, and administration instructions for both client and evaluator. Photographs are used to insure proper layout.

3. Physical Aspects

   a. Packaging of the Work Samples - Each work sample is packaged independently; most of the work samples are contained in plastic cases. Optional carrying cases are available; this increases the portability of the system.

   b. Durability - The system uses sturdy plastic cases and many of the metal components are made of case hardened steel. The TAP tools and equipment are extremely durable.

   c. Expendable Supplies - Aside from recording forms, the TAP uses no expendable supplies.

d. Replacement - If any replacement parts are needed, they could be ordered from the developer or purchased locally. The profile form and time sheets can be reproduced locally.

4. Work Evaluation Process

a. Preliminary Screening - There is no mention of preliminary screening in the manual.

b. Sequence of Work Sample Administration - Work Sample No. 1 must be given first and work sample No. 10 last; the rest may be given in any order. The reason for this is that the last work sample requires the client to construct the same structure as does the first work sample, except it is done without a model. Thus, the separation is needed as a measure of retention.

c. Client Involvement - The type and degree of client involvement and feedback during administration is left to the discretion of the evaluator.

d. Evaluation Setting - Although the evaluation setting is not specified, the TAP lends itself to a formal testing atmosphere.

e. Time to Complete the Entire Battery - The tests can be administered in from two to two and one-half hours.

5. Administration

a. Procedures - The materials, tools, layout and exact client instructions and demonstrations are specified in detail; photographs are used for clarification. The manual cautions against testing persons who are under medication, ill, depressed, etc.

b. Method of Instruction Giving - While the basic method of instruction giving is oral with demonstrations, the evaluator is to "make certain that clients have complete understanding of directions" by using other techniques, if necessary: "Having clients demonstrate, having clients repeat directions, and permitting clients to practice." No reading is required for any test. Any spoken language may be used in order to instruct the client; sign language may also be used.

c. Separation of Learning/Performance - There is a client practice period prior to timing. After the instructions are given by the evaluator and understood by the client, timing begins. There is some separation of learning from performance.

d. Providing Assistance to the Client - The evaluator is to make sure that the client fully understands the task before timing begins.

e. Repeating Work Samples - To quote the manual: "Assessment should be redone if individuals express the feeling that they can do better. This will happen with a few who ultimately realize that they did not really try."

6. Scoring and Norms

   a. Timing - The evaluator times the client using an electronic timer that reads in minutes and tenths of minutes.

   b. Timing Interval - Timing begins when the client fully understands the instructions and stops when the task is completed.

   c. Time Norms - The actual completion time to the nearest tenth of a minute is recorded. After any "penalty" scores have been added to the completion time, the total raw time score is compared to percentile norms.

   d. Error Scoring - Tests 5, 6, 7, and 8 are completion tests. The evaluator checks the task and, if not complete, the client is told to complete the task. The additional time needed is recorded and added to the original time. Tests 1, 2, 3, 4, 9, and 10 incorporate errors into the time score; a penalty time is assessed based on the number of errors. This time is added to the raw score and the new score is compared to percentile norms.

   e. Scoring Aids - The design of the tests prevents the use of scoring aids.

   f. Quality Norms - There are no separate quality norms. In those tests which are scored for errors, the number of errors is multiplied by a constant number and the resulting "penalty" is added to the raw time score.

   g. Emphasis in Scoring - Emphasis is on time scores.

7. Observation of Clients

   a. Work Performance - A few work performance factors are mentioned but none are defined; no information is given for their observation.

   b. Work Behaviors - A few work behaviors are mentioned but none are defined; no information is given for their observation.

   c. Recording System - No method of rating behaviors is used.

   d. Frequency of Observation - This is not specified. Because TAP is intended to be used primarily as an objective series of tests, the system's developer chose not to emphasize client observation.

8. Reporting

   a. Forms - A raw score form and a profile sheet are used.

   b. Final Report Format - The profile sheet contains the percentile scores for each work sample; a placement and training number (P.A.T. #) is assigned to each individual profile sheet. This number is assigned to

each individual profile sheet based on performance and specific occupations in the DOT, worker trait groups in the GOE and vocational program areas are recommended for the client through specific correlations in the manual.

9. Utility

   a. Vocational Exploration - Because the system is really standardized perceptual and dexterity tests, they are too abstract to provide much direct vocational information to the client without interpretation by the evaluator. However, some general occupational information is contained in the manual and this could be given to clients.

   b. Vocational Recommendations - Using the P.A.T. number for each individual profile, the manual lists exact job titles with DOT codes in conjunction with worker trait groups in the GOE. The job listing is comprehensive.

   c. Counselor Utilization - The profile sheet with its occupational recommendations is designed for the counselor, teacher, employer or client. The user has specific information on individual jobs that can be used in a variety of ways.

10. Training in the System

   a. Training Required - Yes

   b. Training Available - Yes; at the purchaser's site.

   c. Duration - About a day and a half.

   d. Follow-up - Information and consultation can be provided as needed.

11. Technical Considerations

   a. Norm Base - Norms are available for: (1) male senior high school students; (2) female senior high school students; (3) male junior high school students; (4) female junior high school students; (5) a mixed sex group of mentally retarded adults; (6) unselected employed young adults; and (7) male alcoholics. All groups are of adequate size, but some details of group characteristics are not given.

   b. Reliability - The developers report a coefficient of stability of over .85 in preliminary test-retest studies over a six month period; however, not enough of the procedures are given to fully judge the meaning of these results.

   c. Validity - No data available.

12. Reviewer's Summary and Comments - As opposed to other work evaluation systems which attempt to present a complete picture of the client, the TAP can be characterized as a battery of perceptual and dexterity tests designed to measure gross and fine finger and manual dexterity; visual and tactile discrimination; and retention of details. Thus, it is limited to the assessment of these fairly specific factors. The developer does not claim that this system will assess all vocationally significant capacities and behaviors; in fact the manual states that other assessment devices should be used in addition to the TAP to obtain a complete evaluation of the client.

13. Address

Talent Assessment, Inc.
P.O. Box 5087
Jacksonville, Florida 32207

14. Cost

The $4,125.00 price includes delivery and on-site staff training.

15. References

Morley, R. (Ed.), Vocational assessment systems. Des Moines: State of Iowa, Department of Public Instruction, 1973.

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The TOWER System

(TOWER)

1. Development

   a. Sponsor - TOWER was originally developed with funding from HEW, Vocational Rehabilitation Administration. Subsequent refinements have been made by the ICD Rehabilitation and Research Center.

   b. Target Group - Apparently the system was first developed for physically disabled persons; it is now used for all types of disabled persons, such as emotionally disabled.

   c. Basis of the System - Job analysis of positions that were considered open to handicapped persons in the New York City area.

2. Organization

   a. Name and Number of Work Samples - The system contains 93 work samples arranged into 14 job training areas:

      (1) Clerical - Business Arithmetic; Filing, Typing, One-hand Typing; Payroll Computation; Use of Sales Book; Record Keeping; and Correct Use of English.
      (2) Drafting - T-Square and Triangle; Compass; Working Drawing; Drawing to Scale; and Geometric Shapes.
      (3) Drawing - Perspective; Forms, Shapes and Objects; Shading; Tone and Texture; Color; and Free Hand Sketching.
      (4) Electronics Assembly - Color Perception and Sorting; Running a 10 Wire Cable; Inspecting a 10 Wire Cable; Lacing a Cable; and Soldering Wires.
      (5) Jewelry Manufacturing - Use of Saw; Use of Needle Files; Electric Drill Press; Piercing and Filing Metals; Use of Pliers; Use of Torch in Soldering; and Making Earring and Broach Pin.
      (6) Leathergoods - Use of Ruler; Use of Knife; Use of Dividers; Use of Paste and Brush; Use of Scissors and Bond Folder in Pasting; Constructing Picture Frame; and Production Task.
      (7) Machine Shop - Reading and Transcribing Measurements; Blueprint Reading; Measuring with a Rule; Drawing to Measurement; Metal Layout and Use of Basic Tools; Drill Press Operation; Fractions and Decimals; Measuring with the Micrometer Caliper; and Mechanical Understanding.
      (8) Lettering - Lettering Aptitude; Alphabet and Use of T-Square; Use of Pen and Ink; Use of Lettering Brush; and Brush Lettering.
      (9) Mail Clerk - Opening Mail; Date-Stamping Mail; Sorting Mail; Delivering Mail; Collecting Mail; Folding and Inserting; Sealing Mail; Mail Classification, Use of Scale; and Postage Calculation.

Note: "TOWER" is an acronym for "Testing, Orientation and Work Evaluation in Rehabilitation."

(10) Optical Mechanics - Use of Metric Ruler; Use of Calipers; Lens Recognition; Lens Centering and Marking; Use of Lens Protractor; and Hand Beveling and Edging.
(11) Pantograph Engraving - Introduction to the Engravograph; Setting-Up, Centering Copy and Determining Specified Ratios; Use of Workholder and Adjustment of Cutter; and Setting-Up and Running Off a Simple Job.
(12) Sewing Machine Operating - Sewing Machine Control; Use of Knee Lift and Needle Pivoting; Tacking and Sewing Curved Lines; Upper Threading; Winding and Inserting Bobbin; Sewing and Cutting; and Top Stitching.
(13) Welding - Measuring; Making a Working Drawing; Identifying Welding Rods; Use of Acetylene Torch; Use of Rods and Electrodes; Use of Torch and Rod; Measuring and Cutting Metal; and Soldering.
(14) Workshop Assembly - Counting; Number and Color Collation; Folding and Banding; Weighing and Sorting; Counting and Packing; Washer Assembly; Inserting, Lacing and Typing; and Art Paper Banding.

b. Grouping of Work Samples - The work samples are grouped into 14 major areas of training. While each of the 14 areas is independent, the work samples within each area are arranged in order of complexity. In most instances, simpler tasks must be completed before beginning complex ones.

c. Manual - The printed manual is bound in a loose-leaf folder. There is a separate section for each of the 14 areas. Each contains the following major headings: orientation, preparation, instructions for each work sample scoring criteria, and any scoring aids. Some details on the set-up are not included; also it is not always clear if instructions should be read to the client or read by the client.

3. Physical Aspects

a. Packaging of the Work Samples
b. Durability -
c. Expendable Supplies
d. Replacement

} Because ICD does not sell hardware or equipment, each facility must construct their own. Therefore, this information would depend upon the individual facility.

4. Work Evaluation Process

a. Preliminary Screening - This is emphasized for planning purposes, but the specific information needed prior to administration of the system is not specified.

b. Sequence of Work Sample Administration - Administration is progressive within the major areas; the choice of areas depends upon client interest and/or the evaluation plan.

c. Client Involvement - No client involvement procedures are specified in the manual.

d. Evaluation Setting - A realistic work atmosphere and setting are stressed.

e. Time to Complete the Entire System - The average client completes the entire system in three weeks; however, clients seldom take all work samples in the system.

5. Administration

a. Procedures - The purpose and procedures are clearly described. All tools and materials are listed that are required. Almost no layout details are given.

b. Method of Instruction Giving - The system uses mainly written instructions that are supplemented by evaluator explanation and demonstration when needed.

c. Separation of Learning/Performance - Many of the work sample instructions do not contain any separation between a formal practice period and an established timing period. This manual is not at all clear on this point.

d. Providing Assistance to the Client - The evaluator is encouraged to ensure that the client knows how to perform the task before he begins to work; procedures for assisting the client after he has started the task are not specified.

e. Repeating Work Samples - The readministration of work samples is encouraged for the purpose of upgrading client performance.

6. Scoring and Norms

a. Timing - The evaluator times the client, but no procedure for timing is established.

b. Timing Interval - Timing begins following instruction and stops upon completion of the task. Often, however, this point is difficult to locate.

c. Time Norms - Time results are rated on a five-point scale, based upon the number of minutes to completion.

d. Error Scoring - All items are checked against carefully defined scoring criteria.

e. Scoring Aids - Extensive use is made of transparent overlays and other scoring aids.

f. Quality Norms - All work samples are rated on a five-point scale, based upon the number of errors.

g. Emphasis in Scoring - Time and the quality of the finished product are given equal weight.

7. Observation of Clients

   a. Work Performance - The only work performance factor specifically listed is "dexterity."

   b. Work Behaviors - A comprehensive checklist of work bevhaiors (e.g., neatness, attendance) are listed in the vocational evaluation report.

   c. Recording System - A five-point system is used to rate "work and personal characteristics"; the points on the scale are not clearly defined.

   d. Frequency of Observation - Frequent observations are not emphasized, but are taken for granted. There is no established procedure for behavior observation.

8. Reporting

   a. Forms - Standardized forms are used for attendance and punctuality; for a summary of time and quality results for each work sample; and for a "vocational evaluation report."

   b. Final Report Format - The three page final report contains ratings of "Work and Personal Characteristics," ratings for each of the 14 job areas and a narrative report.

9. Utility

   a. Vocational Exploration - The client is exposed to many different training areas which are representative of a variety of jobs. The manual contains some specific occupational information that is given during the administration of the work samples.

   b. Vocational Recommendations - Vocational recommendations are limited to jobs that are directly related to the work samples. The recommendations are not highly related to the DOT and are primarily training orientated.

   c. Counselor Utilization - Counselor involvement in the evaluation process is recommended; the final report is aimed at the referring counselor and client.

10. Training in the System

   a. Training Required - Yes, for inexperienced vocational evaluators.

   b. Training Available - Yes; this includes training in other work sample systems as well as work sample development.

   c. Duration - Two weeks

   d. Follow-up - No

11. Technical Considerations

a. Norm Base - The system was normed on clients at the Institute for the Crippled and Disabled (ICD): sample sizes or characteristics are not given. Industrial norms are not available.

b. Reliability - No data available.

c. Validity - A seven city research study produced equivocal results. The empirical validity of the TOWER is still open to much question.

12. Reviewer's Summary and Comments - The TOWER System is the oldest complete work evaluation system and over the years has served as a model for the development of many work samples. The TOWER uses a realistic job setting to thoroughly evaluate clients for a rather narrow group of jobs. The facts that the TOWER was based on job analysis and that the system has been used for many years to place and train handicapped people are indications that the system is very useful in evaluating clients for a small group of jobs. The lack of precise definitions for work performance factors and client behaviors and the lack of adequate norms are the major weaknesses of the system. The high use of written instructions and the high level of the areas evaluated restricts its use with low literate and mentally retarded clients.

13. Address

International Center for the Disabled
340 East 24th Street
New York, New York 10010

14. Cost

The TOWER Evaluator's manual is priced at $200.00 and includes copies of all work samples, response sheets and scoring criteria. The work samples, plus three extra sets of evaluations are available individually at prices ranging from $25.00 to $100.00. Training tuition is $450.00, which includes manual and all software. Note: No hardware is sold by ICD; each facility constructs the work samples. ICD estimates cost to set up unit at about $5,000.00.

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Valpar Component Work Sample Series

(Valpar)

1. Development

   a. Sponsor - The work samples were developed or modified by Valpar International.

   b. Target Group - The work samples were originally intended for use with the general population but have been used extensively with industrially injured workers. The manuals do not contain a statement that the work samples are designed to serve any specific population; it can be assumed that the Valpar can be used with a wide variety of client groups. Modifications are available for Valpar 1, 2, 3, 4, 7, 8, 9, and 10 for use with the visually handicapped. Videotapes and signed administration instructions are available for deaf persons on Valpar 1 to 16, except 14.

   c. Basis of the System - According to the developers, the work samples are based on a trait-and-factor approach taken from job analysis. The manual for each work sample relates that work sample to several Worker Trait Groups Arrangement as well as specific occupations.

2. Organization

   a. Name and Number of Work Samples - At present there are 16 work samples contained in the series:

      (1) Small Tools (Mechanical); (2) Size Discrimination; (3) Numerical Sorting; (4) Upper Extremity Range of Motion; (5) Clerical Comprehension and Aptitude; (6) Independent Problem Solving; (7) Multi-Level Sorting; (8) Simulated Assembly; (9) Whole Body Range of Motion; (10) Tri-Level Measurement; (11) Eye-Hand-Foot Coordination; (12) Soldering and Inspection (Electronics); (13) Money-Handling; (14) Integrated Peer Performance; (15) Electrical Circuitry and Print Reading; and (16) Drafting.

   b. Grouping of Work Samples - The work samples were developed and are intended for use as individual components and are not grouped as an evaluation system.

   c. Manual - A separate manual is used for each work sample. Each contains sections on purpose, job classifications, work sample description, general administration and scoring, client instructions, rating directions, and normative data. A separate Evaluator's Manual contains sections on scoring norms for each work sample as well as descriptions of the norm groups and methods. Most material is detailed and easy to follow.

3. Physical Aspects

   a. Packaging of the Work Samples - All work samples are packaged separately and are self-contained. Where appropriate, work samples have lockable cases.

   b. Durability - Components are well-constructed and durable, requiring little or no maintenance. One exception may be the Money Changing work sample where problems with the dial can occur.

   c. Expendable Supplies - Most of the Valpar work samples require no expendable supplies. The few that do use mostly paper forms.

   d. Replacement - All replacement parts can be ordered from Valpar. Forms may be reproduced locally or ordered from Valpar.

4. Work Evaluation Process

   a. Preliminary Screening - The work samples do not require preliminary screening.

   b. Sequence of Work Sample Administration - The order and the number of work samples to be given is left to the discretion of the evaluator. It must be remembered that the Valpar is a group of independent work samples and not a system.

   c. Client Involvement - Because work sample administration resembles a formal testing situation, client involvement is minimal; feedback on performance is left up to the discretion of the facility and individual evaluator.

   d. Evaluation Setting - The work samples can be used in either a classroom setting or workshop setting. However, noise levels, lighting and placement of the work samples are recommended.

   e. Time to Complete Entire System - It is estimated by the reviewer that most work samples can be completed in one hour or less. The Drafting, Integrated Peer Performance, and Clerical Comprehension and Aptitude could take over one hour to administer.

5. Administration

   a. Procedures - The materials required, evaluator instructions, and the layout are clearly described in the manual; detailed illustrations of the work sample are used to insure accuracy. All work samples recycle themselves so that they are ready for the next administration. Thus, little evaluation time is spent in disassembling completed tasks.

   b. Method of Instruction Giving - A combination of oral instructions with accompanying demonstrations is used by the evaluator to administer most work samples. Instructions are read verbatum from the manuals. In the Clerical Comprehension and Aptitude and the Money

Handling Work Sample, the client is required to read instructional and testing materials that simulate the tasks required in these two work samples.

c. Separation of Learning/Performance - Eight of the Valpar work samples have a formal practice period during which time the client must reach an established criteria.

d. Providing Assistance to the Client - The evaluator is encouraged to insure that the client has a thorough understanding of the task and demonstrate each task, if necessary, on those work samples without formal practice sessions before beginning timing. The manuals do not specify what (if any) assistance may be given to the client after timing has started.

e. Repeating Work Samples - Readministration is encouraged if desired by the evaluator.

6. Scoring and Norms

a. Timing - The evaluator times the client. On some work samples (e.g., Clerical Comprehension and Aptitude), where there are several distinct tasks, each task is timed separately. The disassembly of many work samples is also timed. The manuals are specific as to when timing should begin and end.

b. Timing Interval - Timing begins after the instructions have been given and ends when the task is completed. There are no cutoffs in terms of time-to-completion, except in Simulated Assembly.

c. Time Norms - The completion time in seconds is recorded for each portion of all work samples. The total time is converted into percentiles at 5% intervals; MTM standards also use percents as a conversion method.

d. Error Scoring - Errors are well defined; the number of errors is recorded for each part of the sample and totaled. Total errors are converted to a percentile score. The Valpar also uses a performance percentile score which is a combination of time and error scores. Where appropriate, there are MTM error norms for all work samples.

e. Scoring Aids - Use is made of scoring aids; some work samples have automatic scoring devices.

f. Quality Norms - Separate quality norms are used; errors are converted to a percentile form at 5% intervals.

g. Emphasis in Scoring - The emphasis is on the performance percentile score, which is weighed in combination of time and error scores.

7. Observation of Clients

a. Work Performance - No work factors are specified for individual work samples.

b. Work Behaviors - The same 17 worker characteristics (e.g., ability to work alone; ability to respond to change; ability to communicate; ability to make decisions) are defined in each work sample manual; there are no behaviors that are to be observed for each separate work sample. Most of these characteristics are not clearly defined and all require subjectivity on the part of the evaluator. Evaluators are instructed to rate only those characteristics "which are applicable to the client."

c. Recording System - The evaluator uses a five-point scale to rate clients on each of the 17 worker characteristics.

d. Frequency of Observation - Frequency of observation is not specified; however, frequent evaluator contact is required on many work samples due to the administration and scoring procedure.

8. Reporting

a. Forms - A separate standard form is used for each work sample for recording scoring information and rating worker characteristics. Body position charts are included with the Upper Body Range of Motion and Whole Body Range of Motion work samples for recording pain and fatigue.

b. Final Report Format - Because the work samples are not part of a unified system, no information or recommendations are given for reporting results in a unified manner.

9. Utility

a. Vocational Exploration - There is limited opportunity for vocational exploration due to the abstract nature of some of the work sample.

b. Vocational Recommendations - Because these are individual components and not a system evaluation, vocational recommendations cannot be made on the basis of one work sample. The use of the Valpar work samples for making vocational recommendations largely depends upon their use by the individual evaluation unit.

c. Counselor Utilization - Because the system uses the purchasing facility's report format, counselor utilization cannot be specified.

10. Training in the System

a. Training Required - Training is not required as a condition of purchase.

b. Training Available - Training is available from Valpar International.

c. Duration - This duration depends upon the needs of the evaluator.

d. Follow-up - Follow-up after training is available on a consultation basis.

11. Technical Considerations

a. Norms - Each of the work samples were normed on the following groups: (1) Two groups of mentally retarded persons; (2) Air Force enlisted personnel; (3) employed workers; (4) deaf persons; (5) skill center trainees and (6) community colleges. Sample sizes for each group are a minimum of 50 and range upward to over 550. All samples are clearly described. Means and standard deviations are given for time, error, and performance scores for each group. Results are given in percentile. Methods-Times-Measurement (MTM) standards (or norms) were developed for each work sample.

b. Reliability - The test-retest reliability for each part of each work sample is given. The standard error of measurement was also computed. The reliability coefficients are generally very high. Because the methods used to gather and analyze the data are not given, no assessment can be made about the meaning of these data.

c. Validity - Each manual contains short descriptions of the different types of validity. However, no data are available.

12. Reviewer's Summary and Comments - The Valpar Component Work Sample Series currently consists of 16 individual work samples which are physically well designed and constructed. They are appealing to clients and lend themselves to easy administration and scoring. Individual work samples can be easily incorporated into an existing evaluation program. Because these individual work samples can be purchased as needed by facilities, there are no unified final report forms and other aspects of an integrated system are lacking. The major problem with the Valpar is in the area of relationship to jobs. According to the manuals, each component is keyed to a number of specific occupations as well as worker trait groups. However, the manuals offer no convincing evidence that, for example, one work sample could be related to ten Worker Trait Groups.

13. Address

Valpar International
3801 East 34th Street
Tucson, Arizona 85713

14. Cost

Individual work samples range from $575.00 to $1,525.00. Any number of work samples can be purchased.

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Vocational Evaluation System by Singer

(Singer)

1. Development

   a. Sponsor - The system was developed by the Singer Educational Division, Career Systems.

   b. Target Group - According to the manual, "The VES is primarily intended for special needs populations (e.g., socially and educationally disadvantaged, mildly retarded, physically handicapped) but may also be used with essentially normal populations. Those special needs groups who have limited reading ability, test poorly, and have a lack of occupational experiences . . ." Thus, it appears that the Singer developers feel the system could be used with a wide range of rehabilitation, educational and manpower populations.

   c. Basis of the System - The work samples within the system are based on a group of tasks contained in closely related jobs. The basis is a combination of job analysis procedures and the job descriptions contained in the fourth edition of the Dictionary of Occupational Titles.

2. Organization

   a. Name and Number of Work Samples - Presently the following 24 work stations are available:

      (1) Sample Making; (2) Bench Assembly; (3) Drafting; (4) Electrical Wiring; (5) Plumbing and Pipe Fitting; (6) Woodworking; (7) Air Conditioning and Refrigeration; (8) Sales Processing; (9) Needle Trades; (10) Masonry; (11) Sheet Metal Working: (12) Cooking and Baking; (13) Small Engine Service; (14) Medical Service; (15) Cosmetology; (16) Data Calculation and Recording, (17) Production Machine Operating; (18) Household and Industrial Wiring; (19) Filing, Shipping and Receiving; (20) Packaging and Materials Handling; (21) Electronics Assembly; (22) Welding and Brazing; (23) Office Services; (24) Basic Laboratory Analysis.

   b. Grouping of Work Samples - Each work station is independent.

   c. Manual - The present Singer manual contains two basic sections. First, the technical section contains data on reading level, a job-task matrix, job analysis, and norms for each work sample. Second, the administrative section provides general information on client behavior, and how to complete all of the forms used. The administration section for each sample contains the following topics: tools and materials, set-up and maintenance, administration, scoring, and quality standards. The manual is unusually thorough and very well organized. A planned revision to the current manual will result in five separate smaller manuals: technical, administration, installation, orientation, and report writing.

3. Physical Aspects

   a. Packaging of the Work Samples - Each work station is self-contained in a carrel that is closed and locked when not in use. Some larger pieces of equipment such as a box-and-pan break and microwave oven are located outside of the carrel.

   b. Durability - Because the Singer stations use fairly sophisticated tools and equipment, it is expected that there would be some problems with durability.

   c. Expendable Supplies - Many of the stations use a considerable amount of expendable items. For example, the Sheet Metal Working station requires two fairly large squares of metal, hinges, a latch and pop rivets. Other stations require wood, wire, fabric, and baking ingredients. Based on Singer price lists of January, 1982, the average price of expendable supplies is $3.52 per job sample. The range is between $0.33 and $9.48.

   d. Replacement - All expendable supplies as well as most of the tools can be locally obtained. Other parts can be ordered from Singer.

4. Work Evaluation Process

   a. Preliminary Screening - No preliminary screening is required.

   b. Sequence of Work Sample Administration - The order and the number of work stations given is left to the discretion of the evaluator.

   c. Client Involvement - The client is involved in the evaluation process through a series of self-ratings on interest and performance. Due to the frequent evaluator checkpoints in each work sample, the possibility for client contact with the evaluator is high. The manual does not specify if formal feedback is to be given to the client at the end of the evaluation process.

   d. Evaluation Setting - The use of the carrels and audiovisual instructions could not help but to create a school-like atmosphere.

   e. Time to Complete the Entire System - The manual states that "a general Rule of Thumb is to allow two to two and one-half hours per job sample." Because any number of stations may be administered, no realistic estimates of the length of time to complete the total system can be given.

5. Administration

   a. Procedures - The tools and materials needed as well as set-up and maintenance are given in the manual for each work station. All client instructions are given on auto-vance equipment.

   b. Method of Instruction Giving - All instructions are given using an audio-cassette tape and filmstrip format with the client controlling

the rate of advancement. Typically, the client hears several frames of instruction, then turns off the equipment, performs a specific task and then calls the evaluator to check that task. The linear programmed material is occasionally supplemented with written material. Additional evaluator instructions are discouraged because they would interfere with the standardization; evaluators are to record any type of re-instruction.

c. Separation of Learning/Performance - There is very little separation of learning from performance in the Singer system. Most client instructions do not require a criteria to be reached before going on to repeat the task on a timed basis. On four of the stations, the client completes a product, has it checked by the evaluator, and then performs the task again without instructions on a speeded basis.

d. Providing Assistance to the Client - The evaluator is encouraged to make sure that the client knows how to do the task before he begins to work; checkpoints are provided in the audiovisual material so that the client can ask the evaluator to review his progress before continuing.

e. Repeating Work Samples - Work samples may be repeated at the "request of the client who expresses a desire to try to improve his or her performance." The evaluator may have a work station repeated to assess changes in performance.

6. Scoring and Norms

a. Timing - The client is timed by the evaluator. For each work station, the manual contains instructions at the frame number(s) where the evaluator is to start and stop timing.

b. Timing Interval - The interval varies with each work sample and is specified for each work sample in the manual. In many work samples, there are several timing intervals.

c. Time Norms - All norms are based on the number of minutes to complete the work sample. Participant and/or employed worker norms are reported using a five-point rating scale based on the time score distribution for each work sample. Methods-Time-Measurement (MTM) norms are reported in 10% intervals, with industrial normal being 100%.

d. Error Scoring - All errors are carefully defined and each item (or the entire finished product) is checked against the criteria. In using the MTM standards for quality, each error is classified as major, intermediate, or minor.

e. Scoring Aids - Some use is made of scoring aids.

f. Quality Norms - Participant norms are reported using a five-point rating scale. Industrial norms and MTM quality norms are based on 100% with a specified number of percentage points subtracted for each of three levels of errors.

g. Emphasis in Scoring - Time and error are given equal weight.

7. Observation of Clients

   a. Work Performance - Twenty work factors (e.g., attention span, form discrimination, neatness and use of hand tools) are defined. Each work sample has a separate Task Observation Record which contains specific factors for each task. For example, in the part of the Drafting Work Sample that "compares drawings with models provided," the evaluator is to observe "following a model, inspection and checking, and retention."

   b. Work Behaviors - No work behaviors are listed.

   c. Recording System - Work performance factors are listed on the Task Observation Record; the evaluator does not rate behaviors, he records the observations. A Work Activity Rating Form is used by the client to rate his/her interest in a work station before and after performing the tasks; the client and the evaluator also rate the client's performance on a five-point scale at the end of the work sample. This rating is general and does not include separate ratings for work factors.

   d. Frequency of Observation - The manual lists frequent evaluator checkpoints and assistance points which allow the evaluator to make numerous observations at each station.

8. Reporting

   a. Forms - Forms include the Task Observation Record, Work Activity Rating Form, MTM Rating Form, Industrial Rating Form and a summary sheet for time and quality scores.

   b. Final Report Format - While the manual does not contain any recommended final report format, it does contain a description of what should be contained in a final report.

9. Utility

   a. Vocational Exploration - An extensive amount of occupational information is provided to the client; each work sample contains an introduction to some jobs related to the work sample. Many schools and facilities use the Singer primarily as an interest and career exploration device.

   b. Vocational Recommendations - Because the system contains no final report format, it is difficult to judge the type and quality of vocational recommendations. These would depend upon the user.

   c. Counselor Utilization - For the reason given above, this aspect cannot be accurately judged.

10. Training in the System

   a. Training Required - No

b. Training Available - Yes

c. Duration - Two day, one-week or two-week VES workshops are offered on a regional level on a fee basis.

d. Follow-up - Singer regional managers conduct follow-up visits without charge. Technical consultations may be scheduled through the home office.

11. Technical Considerations

a. Norm Base - Each Singer unit contains three types of norms: client (i.e., participant) norms, employed worker norms, and MTM. All norm groups are of adequate size and sample characteristics and thoroughly described.

b. Reliability - A study by Cohen and Drugo (1976) reported test-retest reliability coefficients of .61 and .71 for an EMR population. These correlations are moderately reliable.

c. Validity - The Singer bases its validity on several sources. First, the content validity of the job-task matrix and of the job analysis for each work sample. The job-task matrix relates specific tasks to specific jobs and identifies which tasks are included in the work sample. The average work station covers about 65% of the tasks given in the matrix. Second, two predictive studies (Gannaway and Sink, 1972; Monroe County, n.d.) attempted to relate work sample scores with success in jobs related to the work samples. While these studies have methodological problems, the significant results are encouraging. Third, a study by Sink, et al. (1976) revealed that the system encouraged users to seek additional occupational information.

12. Reviewer's Summary and Comments - In a review of the Singer system published in an earlier version of this publication, the system was criticized for its inadequate manual. The most recent Singer manual corrects for the earlier lack of thoroughness and goes on to provide almost all the data that the evaluator would need. The process of developing MTM and employed worker norms is one of the strong points of the VES. Also encouraging is the publication of some basic studies on the system. Presently the system provides a measure of interest measurement and skill assessment for jobs mostly in the skilled trades and technical areas. The occupational information remains the strong point of the system. The major problems are the lack of work atmosphere, the use of expendable supplies, and the possible need for a superstructure to integrate the units into a functional whole.

13. Address

Singer Educational Division
Career Systems
80 Commerce Drive
Rochester, New York 14623

14. Cost

As of May, 1982, cost per work station ranges from $1,190.00 to $2,590.00, with the average cost being $1,650.00. The price includes shipping and enough supplies to evaluate approximately 30 people.

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Vocational Information and Evaluation Work Samples

(VIEWS)

1. Development

   a. Sponsor - Philadelphia Jewish Employment and Vocational Service.

   b. Target Group - The system is especially designed for mild, moderate, and severely mentally retarded adults.

   c. Basis of the System - The VIEWS is based on six Worker Skill Groups falling within four Data, People, Things levels of the fourth edition of the Dictionary of Occupational Titles. These levels were chosen because they represent the most common areas of training and employment for mentally retarded persons.

2. Organization

   a. Name and Number of Work Samples - The 16 work samples are organized according to Worker Skill Groups. These groups are Vocational Research Institute constructs which represent a class of exercises involving similar task demands.

      (1) .687 - Materials Sorting - #1 Tile Sorting, #2 Nuts, Bolts & Washers Sorting, #8 Valve Disassembly; Clerical Matching & Counting - #5 Stamping, #10 Mail Sort, #11 Mail Count; Assembling - #4 Collating & Stapling, #6 Nut Weighing, #7 Nut, Bolt & Washers Assembly, #9 Screen Assembly
      (2) .686 - Machine Feeding - #12 Machine Feeding
      (3) .685 - Routine Tending - #3 Paper Cutting, #16 Drill Press
      (4) .684 - Fabricating - #13 Budgette Assembly, #14 Valve Assembly, #15 Circuit Board Assembly

   b. Grouping of Work Samples - The work samples are grouped according to the four D.P.T. levels listed above.

   c. Manual - The manual contains the following information for each work sample: demonstration, setup, training, production and norms. A photograph is used for each work sample to insure proper setup. The use of the recording forms, report forms, etc., is not covered in the manual. These are dealt with during training.

3. Physical Aspects

   a. Packaging of the Work Samples - Fourteen work samples are individually packaged in portable plastic cabinets. The Drill Press and Machine Feeding Work Samples are permanently mounted on a sturdy worktable.

   b. Durability - The plastic cabinets as well as the components for each work sample appear to be very durable.

c. Expendable Supplies - Several sizes and colors of paper, string, and fiberboard squares are the only expendable supplies used. These all can be purchased locally.

d. Replacement - In order to insure standardization, all replacement parts should be ordered from the developer.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required.

b. Sequence of Work Sample Administration - The work samples are given from least complex to most complex. Each work sample has three phases: (1) Demonstration - the evaluator follows the manual to provide an oral description and a physical demonstration for the client; (2) Training - the client is trained to a predetermined criterion of mastery on each work sample--during this phase the evaluator is free to use a wide variety of techniques to make certain that the client learns the task; and (3) Production - after the criterion have been achieved, the client is assigned a set number of cycles of the work sample to perform independently. The purpose in separating the training and production phases is to make sure that the client has learned each task before he performs it.

c. Client Involvement - There is extensive client involvement. In the training phase for each work sample, the evaluator and the client have a significant amount of interaction during the learning process. The Evaluator's Handbook calls for an informal client feedback session after the first day as well as on subsequent days when needed.

d. Evaluation Setting - A realistic work atmosphere and setting are stressed in the Handbook and during evaluator training.

e. Time to Complete the Entire System - The developer estimates that the VIEWS can be administered in from four to seven, five hour days (i.e., 20 to 35 hours).

5. Administration

a. Procedures - The Handbook contains all details necessary for administration. A photograph of each work sample is used to insure proper layout. The instructions for the demonstration phase are given in detail and include both oral and physical directions. The training phase criteria are clearly given.

b. Method of Instruction Giving - No reading is required of the client for any work sample. The demonstration phase uses oral instructions plus modeling. During the training phase the evaluator is free to use a variety of verbal and nonverbal techniques; flexibility is stressed here. Because each work sample is individually administered, the client can receive instructions using the methods which best meet his needs.

c. Separation of Learning/Performance - As stated above, the VIEWS separates learning and performance by having a formal training period for each work sample. Here the evaluator is free to use almost any teaching technique that will result in the client reaching the established criteria. For example, the criterion for the Valve Disassembly Work Sample is: "Two valves consecutively disassembled and sorted without error."

d. Providing Assistance to the Client - Extensive assistance is provided during the training phase; little is given during the production phase. If help is needed during the production phases, the evaluator is to record this on the appropriate behavior observation form.

e. Repeating Work Samples - The VIEWS does not place much emphasis on repeating work samples; it is designed so that the client should have learned the task before the performance phase. However, work samples may be repeated if considered necessary by the evaluator.

6. Scoring and Norms

a. Timing - The evaluator uses a time stamp machine to time the client.

b. Timing Interval - Timing on each work sample begins when the client enters the production phase and ends with the completion of the task.

c. Time Norms - Time results are rated on a three-point scale based on the number of minutes to completion. Predetermined time standards using the MODAPTS approach are also available.

d. Error Scoring - Each work sample is checked against carefully defined quality standards. No random check is made; the entire work sample is scored.

e. Scoring Aids - Some use is made of scoring aids.

f. Quality Norms - The total number of errors for each work sample are converted to a three-point rating scale. The system also contains rate-of-learning norms for use during the training phase.

g. Emphasis in Scoring - Time and quality are both given equal weight in the VIEWS.

7. Observation of Clients

a. Work Performance - Ten work performance factors (e.g., color discrimination, finger dexterity, work rhythm) are carefully defined. In addition to these definitions, specific definitions of the factors are made for each work sample. For example, in the Tile Sorting Work Sample, finger dexterity is assessed by "picking up tiles with fingers," in the Stamping Work Sample, it is "turning pages; picking up stamps." Each work sample has several factors listed that are to be observed. The accurate recording of behavioral observations is emphasized.

b. Work Behaviors - Work behaviors such as attendance and punctuality, response to training, and communication are clearly defined and observed during the course of the day.

c. Recording System - Work behaviors and performance factors are written, as they are observed, on a client record form. Specific behaviors are reported on the forms; no rating system is used.

d. Frequency of Observation - The VIEWS uses extensive observations. Observation of defined work factors is required for each work sample. Work behavior observations are made daily. However, no established time or sample procedures are used for the work behaviors.

8. Reporting

a. Forms - The system uses four types of standardized forms: (1) a client record form for recording training observations, performance observations, behavioral observations, and errors (there is a separate page of this form for each work sample); (2) a daily observation form for summarizing work behaviors and performances; (3) a final report form, and (4) a profile sheet.

b. Final Report Format - The VIEWS final report uses a standardized format to present information on the following: general observations, interpersonal relations, training, worker characteristics, recommendations, and a profile sheet containing work sample results including the industrial time standards for the work samples. Recommendations are given for training techniques, Worker Trait Groups, and for other services that may be required.

9. Utility

a. Vocational Exploration - Since the tasks are work samples and not actual jobs and because almost no occupational information is provided, the VIEWS is of little use in occupational exploration.

b. Vocational Recommendations - Specific recommendations are made; these are related to the six Worker Skill Groups and from D.P.T. levels covered by the VIEWS.

c. Counselor Utilization - The system and the final report are oriented toward the counselor.

10. Training Required

a. Training Required - Yes

b. Training Available - Yes

c. Duration - One week in Philadelphia for new users. Under certain conditions, regional training is available.

d. Follow-up - One technical assistance visit is made to help with the establishment of the system and the management of standardized procedures.

11. Technical Considerations

a. Norm Base - The VIEWS was renormed in 1979 on 452 mentally retarded persons (mean. IQ = 53) between the ages of 15 and 61. All data are reported only in terms of the 1-2-3 ratings. No means and standard deviations are given for the time and error scores for any of the work samples. MODAPT's predetermined time standard norms are also available.

b. Reliability - No data presently available.

c. Validity - No data presently available.

12. Reviewer's Summary and Comments - The VIEWS attempts to evaluate the vocational potential of mentally retarded adults for jobs in four D.P.T. levels. The system relates to job areas that are very common in the national economy and more important to job areas where many retarded persons have found successful employment. The most unique feature of the system is the attempt to separate learning from performance. The developers believe that the client should first be thoroughly taught the task prior to performing it under timed conditions. The VIEWS also uses standardized behavior observations which are combined with time and quality scores to produce a well organized final report. The major problem with using the VIEWS by itself is the lack of occupational information.

13. Address

Vocational Research Institute
Jewish Employment and Vocational Service
1700 Sansom Street, 9th Floor
Philadelphia, Pennsylvania 19103

14. Cost

$8,470.00 includes: work samples, manuals, forms, and tuition for training one person in Philadelphia and one on-site visit by JEVS staff, excluding travel costs. Living expenses and transportation are not included in the price.

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Vocational Interest Temperament and Aptitude System

(VITAS)

1. Development

   a. Sponsor - The VITAS was developed by the Philadelphia Jewish Employment and Vocational Service under contract with the Manpower Administration. The system was originally designed for use within the context of the U.S. Employment Service. JEVS is presently marketing the system to schools, rehabilitation centers and manpower programs.

   b. Target Group - According to the manual, "VITAS is designed for educationally and/or culturally disadvantaged persons of both sexes. The system is not intended for individuals with more than a 12th grade education, the physically handicapped, or the mentally retarded." This reviewer, however, believes that the VITAS could be used with many physically handicapped persons and mildly retarded persons.

   c. Basis of the System - The VITAS is based on 16 Work Groups in the Guide for Occupational Exploration (GOE). These were selected because of employment and/or training opportunities.

2. Organization

   a. Name and Number of Work Samples - The 16 Work Groups are assessed by 21 separate work samples listed below. (Note that several of the work samples assess for more than one work group.)

      (1) 02.04 - Laboratory Technology - #4 Collating Material Samples, #8 Nail & Screw Sorting (Part I); #8 Nail & Screw Sorting (Part II); and #20 Laboratory Assistant
      (2) 05.03 - Engineering Technology - #21 Drafting
      (3) 05.05 - Craft Technology - #11 Lock Assembly, #19 Spot Welding and #21 Drafting
      (4) 05.09 - Materials Control - #2 Packing Matchbooks, #3 Tile Sorting and Weighing, #5 Verifying Numbers, #8 Nail & Screw Sorting (Part II)
      (5) 05.10 - Crafts - #7 Budget Book Assembly, #8 Nail & Screw Sorting (Part I), #9 Pipe Assembly, #11 Lock Assembly
      (6) 05.12 - Elemental Work: Mechanical - #1 Nuts, Bolts & Washers Assembly, #2 Packing Matchbooks and #6 Pressing Linens
      (7) 06.01 - Production Technology - #8 Nail & Screw Sorting (Part I), #11 Lock Assembly, #12 Circuit Board Inspection, #19 Spot Welding, #20 Laboratory Assistant, and #21 Drafting
      (8) 06.02 - Production Work - #1 Nuts, Bolts & Washers Assembly, #6 Pressing Linens, #7 Budget Book Assembly, and #9 Pipe Assembly
      (9) 06.03 - Quality Control - #3 Tile Sorting and Weighing, #4 Collating Material Samples, #8 Nail & Screw Sorting (Part I), #12 Circuit Board Inspection
      (10) 06.04 - Elemental Work: Industrial - #1 Nuts, Bolts & Washers Assembly, #2 Packing Matchbooks, and #6 Pressing Linens

(11) 07.02 - Mathematical Details - #8 Nail & Screw Sorting (Part II), #13 Calculating, #15 Bank Teller, and #17 Payroll Computation
(12) 07.03 - Financial Detail - #8 Nail & Screw Sorting (Part II), #13 Calculating, #15 Bank Teller, #17 Payroll Computation, and #18 Census Interviewing
(13) 07.04 - Oral Communications - #14 Message Taking and #18 Census Interviewing
(14) 07.05 - Records Processing - #5 Verifying Numbers, #10 Filing by Letters, and #16 Proofreading
(15) 07.06 - Clerical Machine Operation - #13 Calculating and #14 Message Taking
(16) 07.07 - Clerical Handling - #2 Packing Matchbooks, #3 Tile Sorting and Weighing, #10 Filing by Letters

b. Grouping of Work Samples - Each work sample is independent in terms of administration and scoring. The results are combined and interperted as part of the above listed classifications. Work samples are also related to work groups.

c. Manual - The manual contains the following information on each work sample: (1) inventory; (2) administration notes; (3) demonstration/instructions, and (4) scoring procedures. A photograph is used for each work sample to insure proper setup. Although examples of report forms and definitions of the aptitude codes are given in the manual, there are no instructions on how to use these items. These are covered during training.

3. Physical Aspects

a. Packaging of the Work Samples - All work samples are packaged independently. Most of the work samples are packaged in plastic containers that could easily be stored when not in use. The only heavy piece of equipment is the spot welder.

b. Durability - The VITAS uses mostly basic tools and equipment that should be very durable. According to the developers, no problems have been reported.

c. Expendable Supplies - The VITAS uses expendable items such as: paper and recording forms, string, and sheet metal. All supplies can be locally obtained. While there are no estimates, the cost per client administration is very low.

d. Replacement - All replacement parts should be ordered from the developer in order to maintain standardization.

4. Work Evaluation Process

a. Preliminary Screening - The manual does not mention that any preliminary screening is needed.

b. Sequence of Work Sample Administration - The client usually begins with the least complex work sample (i.e., Nuts, Bolts and Washers

Assembly) and progresses to the more complex (i.e., Drafting). However, the work samples can be given in any order.

c. Client Involvement - The client is involved in the vocational process at several different times: (1) new clients are given an orientation session when first coming into the evaluation unit; (2) a group motivational session at the end of the first day of evaluation; and (3) a feedback and interest interview after the work samples are administered.

d. Evaluation Setting - The VITAS manual stresses a realistic work setting.

e. Time to Complete the Entire System - According to the manual, "most clients can complete the work sample within three, five-hour days."

5. Administration

a. Procedures - A photograph showing the correct arrangement of parts is given to insure proper setup of each work sample. The instructions for the demonstration part of the work sample are brief and to the point; these include both oral and physical directions. For each work sample, a section called "Administration Notes" contains additional items for setup and any special instructions that are to be followed by the evaluator during the client demonstration.

b. Method of Instruction Giving - All client instructions are given orally and by demonstration. While the client is not required to read any administration instructions, reading and the use of mathematical skills are needed to successfully complete six of the work samples.

c. Separation of Learning/Performance - Nine of the VITAS work samples do not have a separate practice period. After the evaluation instructions and demonstrations are completed and any client questions answered, the client begins the task. No criteria are used to establish that the client has learned the task. For all practical purposes, there is no separation of learning from performance.

d. Providing Assistance to the Client - "When a client has a question or seeks assistance, the evaluator may repeat the necessary part of the instructions, including a re-demonstration, but should never do part of the task for the client. Only a minimum amount of assistance should be given so as to encourage the clients to do as much as they can on their own." Thus, when administering a work sample, the evaluator gives the instructions and demonstration and does not offer any additional explanations unless requested.

e. Repeating Work Samples - Re-administration of work samples is not recommended. However, clients are urged to complete a task as best they can once they begin.

6. Scoring and Norms

a. Timing - The evaluator uses a time stamp machine to mark the starting time on a slip of paper; at the completion of the work sample, the client stamps his/her own slip.

b. Timing Interval - Timing begins when the evaluator completes the instruction phase of the work sample and ends when the client completes the task.

c. Time Norms - The minutes to completion are converted to 1-2-3 rating. No percentile or standard scores are used.

d. Error Scoring - All work samples have carefully defined scoring procedures in which errors are clearly described (e.g., "Number of books with string not tied in a bow.") No random samples are used; the entire work sample is checked. The frequency of each type of error is recorded.

e. Scoring Aids - Extensive use is made of scoring aids such as templates, overlays, coding systems, and measuring instruments.

f. Quality Norms - The errors are converted to a three-point quality rating. As with the time scores, no percentile or standard scores are used.

g. Emphasis in Scoring - Both time and errors are given equal weight.

7. Observation of Clients

a. Work Performance - The VITAS manual describes nine work performance factors (i.e., aptitudes). The definitions of the factors (e.g., spatial, clerical perception, color discrimination) are taken from the DOT definitions. Specific definitions of each aptitude are related to each appropriate work sample. Thus, in the Packing Matchbook Work Sample, manual dexterity (M) is observed as "Transferring matchbooks from bin to tray; handling trays." While in the Tile Sorting and Weighing Work Sample, M is observed by picking up boxes. Each work sample has from two to seven aptitudes that are to be observed. The close and accurate observation of client behaviors is stressed.

b. Work Behaviors - General observations are to be made on attendance, punctuality, verbal ability, interpersonal behavior, and general worker characteristics. These are to be observed and recorded throughout the working day.

c. Recording System - No rating or checklist system is used; specific behaviors for each work sample are recorded on a separate form for that work sample.

d. Frequency of Observation - While the manual contains no specific instructions as to when and how often to observe behavior, the system stresses the almost constant observation of client behavior.

8. Reporting

a. Forms - The system uses five types of standardized forms: (1) a Work Sample Record Form for recording; aptitude and behavior observations, types of errors, and time and error scores (there is a

separate page of this form for each work sample); (2) a general observation form, (3) a final report form, (4) a Vocational Interest Interview Form, and (5) a profile sheet.

b. Final Report Format - A four page final report form uses a standardized format to present information on the following: physical description; attendance and punctuality, verbal ability, interpersonal behavior, skills, vocational recommendations by Work Groups, recommendations for supportive services, and profile of all work sample time and quality ratings.

9. Utility

a. Vocational Exploration - The VITAS is of limited use for providing the client with occupational information. The nature of many of the tasks is abstract and no job information is provided during the instruction period for each work sample. However, the manual states that occupational/vocational information should be used as a supplement to the VITAS.

b. Vocational Recommendations - Recommendations are made in two specific areas: (1) the most feasible Work Groups for employment or training and (2) specific supportive services needed to obtain the employment goal. Apparently, recommendations within each work group are kept general - no specific jobs are suggested.

c. Counselor Utilization - The final report is aimed at the counselor who needs to make fairly specific vocational decisions.

10. Training in the System

a. Training Required - Yes

b. Training Available - Yes

c. Duration - A one-week training session is held in Philadelphia. Regional training is available under certain conditions.

d. Follow-up - One technical assistance visit is made to assist with the establishment of the system and the maintenance of standardized procedures.

11. Technical Considerations

a. Norm Base - There are two norm groups for the VITAS. The 1980 norms contained results on a sample size of about 325 persons. The sample is clearly described--63% female, white 63%, median age - 25 years and 35% 12th grade education. The 1981 secondary school norms have about 220 cases for each work sample. The mean age is 15.2 years, white - 78%, male - 68% and 67% learning disabled. Time and error scores are converted to a 1-2-3 rating system. No employed worker or predetermined time standard norms are given.

b. Reliability - No data are available.

c. Validity - No data are available. The manual makes reference to "face" validity as a criterion and then confuses this with content validity.

12. Reviewer's Summary and Comments - The VITAS System is the third work sample system developed by Philadelphia JEVS. Like the JEVS and VIEWS systems, it stresses the importance of careful and accurate behavior observations. The system also uses the work sample to work group approach that has served JEVS so well in the past. It must also be pointed out that many of the VITAS work samples are refinements and modifications of the original JEVS system. While the system could provide accurate assessment of CETA populations in a relatively short period of time, it has two problems: (1) a lack of client occupational information, and (2) the failure to make any real distinction between learning and performance. The emphasis upon close client contact, careful observations, and the practical reporting format are the three major advantages of the system.

13. Address

Vocational Research Institute
Jewish Employment and Vocational Service
1700 Sansom Street, 9th Floor
Philadelphia, Pennsylvania 19103

14. Cost

$8,886.00 includes work samples, manuals, forms, and tuition for training one person in Philadelphia and one on-site visit, excluding travel costs. Living expenses and transportation for the evaluator are not included in the price.

15. References

Zimmerman, B., VITAS, In A. Sax (Ed.), Innovations in Vocational Evaluation and Work Adjustment. Vocational Evaluation and Work Adjustment Bulletin, 1979, 12(1), 29-31.

*Harris, J., Final report: VITAS work samples assessment as part of the Job Service demonstration project for out-of-school youth. (U.S. DOL contract #20428020), 1980.

Vocational Skills Assessment and Development Program

(Brodhead-Garrett)

1. Development

   a. Sponsor - The system was developed by the Brodhead-Garrett Company of Cleveland, Ohio.

   b. Target Group - According to the manual, the system has been "designed for learners from ages 12 through adult with primary emphasis on the handicapped and the disadvantaged." The manual goes on to state that it can also be used with unemployed and underemployed persons.

   c. Basis of the System - The three manuals do not contain a discussion of the basis of the system. Apparently, the system is based upon the selection of vocational training programs and the providing of occupational information. No job classification using either the DOT or the U.S. Office of Education classifications is contained in the manuals.

2. Organization

   a. Name and Number of Work Samples - The system contains three phases; only the first phase uses work samples. The second and third phases consist of specific tasks within a general vocational area.

      (1) Phase I - During this phase, the client is engaged in three types of activities.

         (a) Sorting - Six activities involving objects of different sizes and shapes as well as letters.
         (b) Assembly - Six activities in putting together pipes, collating, using a doorbell, nuts and bolts, and hand packaging.
         (c) Salvage - Six activities involving the disassembly of the items put together in the Assembly Component.

      (2) Phase II - The seven separate vocational components are intended to provide occupational information and to develop entry level skills: (1) basic tools, (2) sheltered employment, (3) building maintenance, (4) health, (5) agri-business, (6) clerical/sales, and (7) construction trades. Each of these seven component programs is also composed of units. For example, the sheltered employment section includes the following: (1) collating, (2) engraving, (3) injection/rotation molding, (4) salvage/sorting, (5) packaging and (6) contracts/production.

      (3) Phase III - The seven separate program areas are designed to provide "basic job entry level skills for specific occupations": (1) health, (2) agri-business, (3) building maintenance, (4) clerical/sales, (5) automotive, (6) small engine, and (7) construction. As with Phase II, each Phase III program is composed of numerous subunits. For example, the small engine program

includes the following: (1) use of tools, (2) serivce and operation, (3) disassembly of major parts, (4) assembly of major parts, and (5) diagnosing problems.

b. Grouping of Work Samples - The program is divided into three phases as outlined above. It must be stressed that the Brodhead-Garrett is much more than a vocational evaluation system. Only Phase I can be considered as a work sample system as the term is used in vocational evaluation. Phases II and III are really generalized plans, goals, and curriculum for in-depth occupational exploration and skill training.

c. Manual - The system has a separate manual for each phase. The Phase I manual contains instructions for administering and scoring as well as reporting forms. There are the evaluator's instructions; there are no detailed client instructions. The manual also lacks procedures for timing and scoring. The Phase II and III manuals contain general goals, methods, and outcomes. These manuals are well organized.

3. Physical Aspects

a. Packaging of Work Samples - Phase I work samples are contained in a large locking wooden cabinet. All work samples are stored within this cabinet. Each work sample is packaged individually. Phases II and III really cannot be judged because they are not work samples.

b. Durability - The tools and materials appear to be very durable.

c. Expendable Supplies - For Phase I, there is a minimal amount of expendable supplies required.

d. Replacement - While it is not stated in the Phase I manual, it is assumed that many parts can be replaced from local sources.

4. Work Evaluation Process

a. Preliminary Screening - Apparently no preliminary screening is required. However, prior medical and psychological recommendations are encouraged for use.

b. Sequence of Work Sample Administration - According to the developer, the sequence is dependent upon the implementation of the system, i.e., the number of participants and scheduling. Although each phase is interrelated, any phase can be utilized without the other phases. Any appropriate assessment method can be used prior to the Phase II vocational exploration.

c. Client Involvement - The manuals contain no information about giving client feedback. However, because the work samples must be administered on an individual basis without formal instructions, it is expected that there would be a high degree of client-evaluator contact. A Learner Comment Sheet is completed by the client; this general form includes likes and dislikes, duties performed, and

problems encountered. Phases II and III would assume a teacher-student relationship and here the amount of client involvement would depend upon the individual teacher.

d. Evaluation Setting - Phase I implies either a classroom or an evaluation setting. Phases II and III are mostly educational in nature, although depending on the type of instruction, they could also be industrial.

e. Time to Complete the Entire System - According to the manual, Phase I is "not to exceed six weeks." However, this reviewer estimates that the work samples could be given to most clients within the course of a full week. Phases II and III are training stages and each will last "at least six months" and until placement. Some of the training curriculum in Phase III could take over a year.

5. Administration

a. Procedures - Almost no procedures are specified for Phase I. Only the materials needed for each work sample are specified.

b. Method of Instruction Giving - Instructions are given using a combination of oral and demonstration techniques.

c. Separation of Learning/Performance - According to the Phase I manual, "The instructor should demonstrate each activity and permit learner to practice before timing begins." However, no specific criteria are established and no mention of general criteria is made.

d. Providing Assistance to the Client - No procedures are specified in the manuals.

e. Repeating of Work Samples - The manual states "in case of excessive errors, demonstrate activity a second time and repeat exercise and timing . . . If excessive errors are repeated, further study might be required."

6. Scoring and Norms*

a. Timing - The evaluator times the client and records it on the rating sheet.

b. Timing Interval - Timing begins after instructions and client practice and ends when the task is completed.

c. Time Norms - The time scores in minutes are reported on a three-point scale.

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*For Phase I only; this section is not appropriate for Phases II and III.

d. Error Scoring - The Phase I manual does not specify how the tasks are to be scored for errors. Errors are not defined.

e. Scoring Aids - No scoring aids are used.

f. Quality Norms - A footnote at the bottom of each of three rating scales contains the only reference to error scoring and quality norms in the manual; it states "Deduct one point from score for each error over two--lowest score is 0." There are no quality norms.

g. Emphasis in Scoring - Time and quality are given equal weight.

7. Observation of Clients

a. Work Performance - No work performance factors are rated or discussed in the Phase I manual.

b. Work Behaviors - Each manual provides two rating forms for work behaviors: (1) the Adjustment Instrument contains 14 characteristics dealing mainly with personal and social adjustment (e.g., self-concept, responsibility, control of emotions), (2) the Work Habits Instrument contains 22 characteristics which focus on the performance of the tasks (e.g., attendance, use of work materials, ability to perform job). Both of these forms use a five-point rating scale; none of the factors are defined either in general terms or in behavioral terms. Specific work behaviors are not specified for any of the work samples.

c. Recording System - Ratings on a five-point scale are used. The forms contain little space for comments. The ratings for each area are totaled for worker characteristics.

d. Frequency of Observation - This is not specified in the Phase I manual.

8. Reporting

a. Forms - Time, errors, and a total score are recorded on a separate form for each of three Phase I components. As stated above, two forms are used for worker characteristics.

b. Final Report Format - Manuals contain a four page report form containing the following sections: demographic, initial information, vocational assessment, recommendations, academic history, and employment history. This form is to be updated as the person progresses through the system. A single page profile sheet is also given to plot the performance of tasks in all three components. The manuals contain no instructions for completing these forms.

9. Utility

a. Vocational Exploration - The system's Phase II and III offer the opportunity for specific occupational exploration in selected areas. In particular, Phase II is intended specifically for vocational exploration. Because of the nature of the tasks and the lack of detailed

instructions, Phase I appears to offer little in the way of career exploration.

b. Vocational Recommendations - Each of the separate job areas for Phases II and III contain checklists of the major tasks covered in the areas. The overall level of proficiency is also rated. The usefulness of this data would depend on how it is used by client and teacher.

c. Counselor Utilization - The Brodhead-Garrett manuals contain no mention of the rehabilitation counselor or a referral source. The system is designed to be used as an assessment and training device with the "end product" being a person ready for work.

10. Training in the System

a. Training Required - No

b. Training Available - Training is available.

c. Duration - Two days to one week depending upon the number of phases and the components to be completed.

d. Follow-up - This is provided on an as needed basis.

11. Technical Considerations

a. Norm Base - The manual does not contain any norm data.

b. Reliability - No reliability data are given in the manuals.

c. Validity - No validity data are given in the manuals.

12. Reviewer's Summary and Comments - The Brodhead-Garrett is a system that is intended to provide continuous service from initial assessment through training and evenutally job placement. In this aspect it is unique. Phase I is the only part of the system that can be considered as a work evaluation system as this term is usually used in vocational evaluation. Phase I lacks detailed evaluation and client instructions, norms, proper setup procedures, and scoring methods. In short, the manual for Phase I does not give the evaluator enough information to accurately use the system. In using Phase I, the evaluator must also ask how the content of assessment tasks is related to the specific training given in the other two phases. The success of Phases II and III depends on a large part upon the quality of instruction and the physical facilities. These two phases have the potential for being very useful for training clients in both basic skills and for some entry level positions.

13. Address

Brodhead-Garrett Company
4560 East 71st Street
Cleveland, Ohio 44105

14. Cost

Phase I manual and equipment are approximately $5,950.00. Phase II and Phase III costs depend upon how many tools, equipment, and materials are presently available with the facility or school. If all Phase II and Phase III hardware and software were to be purchased, the cost would be about $48,000. Software costs for each Phase II and Phase III component is $375.00 per manual.

15. References

None presently available.

Wide Range Employability Sample Test

(WREST)

1. Development

   a. Sponsor - The WREST was refined and is marketed by Jastak Associates.

   b. Target Group - The original work samples were aimed at supplementing the assessment of mentally retarded and physically handicapped persons in a sheltered workshop. According to the manual "it is particularly appropriate for day activity centers, sheltered workshops, special education facilities, and other programs whose participants include the mentally retarded, cerebral palsied, and other severely physically, mentally, and socially handicapped." Its primary use is with persons for whom competitive employment of any kind is in doubt.

   c. Basis of the System - The WREST is based on a group of work samples originally developed at a sheltered workshop in Wilmington, Delaware for "referral of handicapped individuals who may be trained in basic work production skills." The work samples were used in conjunction with other techniques to train and select persons for various areas of the workshop.

2. Organization

   a. Name and Number of Work Samples - There are ten work samples. The first two of which each have two parts:

      (1) Folding includes (a) single fold and (b) double folding, gluing, labeling, and envelope stuffing, (2) Stapling includes (a) stapling accuracy and (b) collation and stapling, (3) Packaging, (4) Measuring, (5) Stringing, (6) Gluing, (7) Collating, (8) Color Matching, (9) Pattern Matching, and (10) Assembling.

   b. Grouping of Work Samples - Each work sample is independent.

   c. Manual - The single manual contains the following major areas: (1) history, (2) theory, (3) general administration guidelines, (4) work sample instructions, (5) scoring, (6) technical considerations, and (7) case histories. The general administration section is highly detailed as well as useful. The instructions for each work sample are well organized and easy to follow. A photograph is used for each work sample to insure proper layout.

3. Physical Aspects

   a. Packaging of the Work Samples - The work samples, manuals, supplies, and scoring forms are all contained in a wood cabinet with drawers for each of the tasks. Thus, the entire system is placed in one small cabinet.

b. Durability - All work samples are made of heavy (mostly clear) plastic. The containers should be durable; however, the user should expect some wear of the pegs, tags, and colored pieces.

c. Expendable Supplies - Besides forms, typing paper, stickers, and colored paper swatches are the most common expendable supplies. These are inexpensive and locally available. The developer also sells a resupply kit.

d. Replacement - Replacement parts can be ordered from the developer.

4. Work Evaluation Process

a. Preliminary Screening - No preliminary screening is required.

b. Sequence of Work Sample Administration - The 10 work samples may be administered in any order. However, most evaluators "will find it more convenient to follow the designated order."

c. Client Involvement - The manual stresses that the client(s) should be told what the work samples involve and how the results will be used. The need for individualized attention is also mentioned. There is, however, no statement in the manual on providing feedback after specific work samples.

d. Evaluation Setting - The evaluation setting would most likely be that of a formal testing situation.

e. Time to Complete the Entire System - Administration time for individual clients is about one and a half hours; small groups of three to five persons take about two hours.

5. Administration

a. Procedures - For each work sample, the manual describes the purpose, and gives the materials, scoring information and instructions. A photograph is used to ensure proper layout. The WREST can be administered to small groups of three to six persons. Duplicate sets of the WREST are necessary for group administration.

b. Method of Instruction Giving - All instructions are oral and demonstration; no reading is required. The manual warns that instructions must be closely followed: "any change from the manual may cause confusion, thus invalidating the norms of that test."

c. Separation of Learning/Performance - Each work sample contains a practice period prior to the start of timing. While there are criteria for most work samples (e.g., In Assembling, five practice items must be correct), the evaluator may use additional practice items if necessary to make sure that the client understands the instructions. Thus, there is a separation of learning from performance.

d. Providing Assistance to the Client - The manual clearly states that "once the formal testing has begun, no help can be given, but all possible assistance should be given during the instruction and practice preceding the formal testing."

e. Repeating Work Samples - Readministration of work samples is emphasized for upgrading. Evaluators are encouraged to keep accurate records of all readministration.

6. Scoring and Norms

a. Timing - The evaluator times the client(s) using a stopwatch or other timing device.

b. Timing Interval - Timing is started after the client(s) understand(s) the task and continues for a set period of time, which is different for each task. The time needed to complete each work sample is recorded in minutes and seconds.

c. Time Norms - The number of minutes and seconds recorded are compared to scaled scores ranging from 0 through 19. The scaled scores can also be compared to standard scores.

d. Error Scoring - All completed parts are checked against the clearly defined scoring criteria given in the manual.

e. Scoring Aids - No use is made of scoring aids.

f. Quality Norms - The errors for all ten work samples are added together and the total compared to norm tables.

g. Emphasis in Scoring - The time results are emphasized.

7. Observation of Clients

a. Work Performance - The manual states that the evaluator should be familiar with the dexterity and perceptual aptitudes as defined in the DOT. However, no instructions are given for making, recording, and using these observations.

b. Work Behaviors - Ten general work behaviors (e.g., appearance, perseverance, organization of work, and safety practices) are defined in the manual. These are not defined in behavioral terms. There is a space on the Summary Profile for rating each behavior category.

c. Recording System - Each behavior is rated on a scale from one to 18. Verbal descriptions of from "very poor" to "very good" are used in conjunction with the numbers. There is no explanation of how these ratings are to be obtained; there is almost no room on the form for recording actual observations.

d. Frequency of Observations - This is not specified in the manual.

8. Reporting

a. Forms - A single, two page form is used to record all raw scores and to report the converted scores, as well as the "behavior" observations. The second page of the form contains space for a work history and "summary and recommendations."

b. Final Report Format - A variety of reporting formats are illustrated in the manual. These show examples of final reports which incorporate a wide variety of data from other sources. The WREST was not intended to be used independently of other methods of assessment.

9. Utility

a. Vocational Exploration - The very simple nature of most of the work samples makes the WREST of little use in job exploration for a normal population.

b. Vocational Recommendations - The manual contains no information on the making of vocational recommendations from the work sample results.

c. Counselor Utilization - The manual contains no information on use of WREST results for the counselor.

10. Training in the System

a. Training Required - No training is required prior to purchase or use.

b. Training Available - No formal training is available.

c. Duration - Not applicable.

d. Follow-up - Not applicable.

11. Technical Considerations

a. Norm Base - Time and quality norms are available on three major groups: (1) general population, (2) sheltered workshop employees, and (3) competitively employed workers. The general population group is further broken down into six age groups and by sex. In the workshop and industrial groups, ages and sex were combined when it was discovered that there was little significant differences within these general groups. Norm groups are well defined and sample sizes range from 200 for individual groups to 4000 for large groups. All samples were collected in the State of Delaware.

b. Reliability - Test-retest reliability coefficients for time and error scores on the ten work samples were calculated using 428 employed workers over a three month period. All correlations were in the .90's. A second study on a very small sample (N=15) repeated the WREST three times over a period of a few weeks; the correlations were in the high .80's and low .90's. These results are a strong indication of the test-retest reliability of the WREST.

c. Validity - Validity is based on two correlations between supervisor's ratings and time and error standard scores for 428 employed workers. The WREST correlated .86 (time) and .92 (quality) with the ratings. These correlations are extremely high; so high in fact that the manual advises that "extreme caution must be used in regarding such studies as the above as valid measures of test validity." Nevertheless, the results are encouraging.

12. Reviewer's Summary and Comments - The WREST consists of ten, short, low-level tasks apparently designed to assess mainly the manipulation and dexterity abilities of the client. Although it is not stated in the manual, the WREST seems most useful in assessing new clients for assignment to suitable work projects within a sheltered workshop. The emphasis upon repeating the work samples many times should provide an evaluation of the client's ability to improve his performance under repeated practice conditions. The major problems of the system center around the lack of systematic behavior observations, failure to relate results to the competitive job market, and the apparent lack of a useable final report for the referring counselor or agency. Finally, the WREST has an adequate norm base, good estimates of test-retest validity, and an attempt at establishing concurrent validity. In a field that is all too often characterized by poor technical development, the WREST can serve as a good example.

13. Address

Jastak Associates, Inc.
1526 Gilpin Avenue
Wilmington, Delaware 19806

14. Cost

Work Sample Kit	
With Cabinet	$1,395.00
Witout Cabinet	1,095.00
Manual	25.30
Resupply Kit	115.00
Record Forms (50)	9.25

15. References

Botterbusch, K., Wide Range Employment Sample Test. In A. Sax (Ed.), Innovations in vocational evaluation and work adjustment. Vocational Evaluation and Work Adjustment Bulletin, 1973, 6(2), 40-43.

Jastak, J. F., & Jastak, S., Meanings and measures of mental tests. Wilmington, Delaware: Jastak Associates, 1979.

Morley, R., (Ed.), Vocational assessment systems. Des Moines: State of Iowa, Department of Public Instruction, 1973.

Timmerman, W. J., & Doctor, A. C., Special applications of work evaluation techniques for prediction of employability of the trainable mentally retarded. Stryker, Ohio: Quadco Rehabilitation Center, Inc., 1974.

Work Skill Development Package

(WSD)

1. Development

   a. Sponsor - The WSD package was developed by the Attainment Co.

   b. Target Group - The package is designed to develop work skills in severely "mentally disabled persons."

   c. Basis of the System - The WSD reflects three basic prevocational skills: (1) ability to discriminate between objects, (2) manipulate objects, and (3) apply basic concepts. While the WSD is intended to be mainly a training package for prevocational skills, it can be used as a vocational evaluation system.

2. Organization

   a. Name and Number of Work Samples - The system consists of 20* work samples arranged in three groups:

      (1) Discrimination Tasks - Three Item Sort, Basic Size Discrimination, Tactile Discrimination, Cue Variable, Subtle Color, Subtle Size Discrimination, Six Item Sort, Rubber Parts Sort, and Twenty-four Item Sort.

      (2) Assembly Tasks - Tube Assembly/Disassembly; Paint Brush Assembly/Disassembly; Coupling Assembly/Disassembly; Container Assembly/Disassembly; Connector Assembly/Disassembly; Pen Assembly/Disassembly and Shelf Assembly/Disassembly.

      (3) Packaging Tasks - Color Match Collating/Collating Disassembly; Snap Box Packaging/Disassembly; Small Parts Packaging/Disassembly; Plate Weighing and Bagging/Plate Disassembly.

   b. Grouping of Work Samples - The work sample tasks are grouped in two different ways: First, by function as listed above. Second, by difficulty. When classified by difficulty, there are four series of five tasks each; each series contains tasks taken from the discrimination, assembly, and packaging.

   c. Manual - All directions are contained in a single loose-leaf binder. The manual is organized by work sample function. The following instructions are given for each work sample: materials, procedure, quality criteria, norms, and any notes of explanation. There are also illustrations showing the proper set-up of the task. The administration instructions are purposely vague; the trainer is to vary instructions according to the client's need.

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*Assembly/Disassembly and Package/Disassembly units are counted as one work sample.

3. Physical Aspects

   a. Packaging of the Work Samples - Each work sample is individually packaged and contained in one or more bins. No parts are shared between work samples.

   b. Durability - The testing materials are made from durable metal, wood, plastic, and rubber. The system appears durable.

   c. Expendable Supplies - Aside from forms and plastic bags for heat sealing, there are no expendable supplies.

   d. Replacement - Some replacement parts and supplies are provided as extras with the initial package. Other supplies may be ordered from the developer.

4. Work Evaluation Process

   a. Preliminary Screening - The manual contains no information on preliminary screening.

   b. Sequence of Work Sample Administration - The tasks are administered according to the four difficulty categories. The client repeats each task until he/she meets the existing criteria; then he/she goes on to the next higher category.

   c. Client Involvement - The manual contains no information about client involvement in the training process and no formal feedback procedures are given.

   d. Evaluation Setting - This is not specified. However, given the nature of the tasks, they would fit into both a school setting and a work activity center level evaluation or work setting.

   e. Time to Complete the Entire System - While this is not specified in the manual, this aspect is not relevant because the system stresses basic training.

5. Administration

   a. Procedures - The materials, procedures, illustrations, etc., are all easy to understand.

   b. Method of Instruction Giving - The evaluator is "to model the correct procedure for the worker as outlined in the Procedure Section" for each task. Verbal instructions are also used. The evaluator is urged to be flexible and modify instructions according to the needs of the individual client.

   c. Separation of Learning/Performance - While the manual allows for a short practice time, prior to timing, no specific instructions on separation of learning from performance are given.

   d. Providing Assistance to the Client - The evaluator has the option of providing extra instruction.

e. Repeating Work Samples - Tasks may be repeated as training devices and as a way of reaching the exit criteria for each of the four Series of Tasks. The repetition of the tasks is partly dependent upon meeting the success criteria for each task.

6. Scoring and Norms

a. Timing - Not specified.

b. Timing Interval - Not specified; the manual seems to imply that the evaluator begins to time the client after the practice session and stops when the last object has been sorted, assembled, disassembled, or packaged.

c. Time Norms - MTM norms are provided for the assembly/disassembly and the packaging tasks. There are no time norms for the discrimination tasks.

d. Error Scoring - Each piece is checked against a well-defined criteria.

e. Scoring Aides - No scoring aides are used.

f. Quality Norms - There are no quality norms; a percentage of errors is recorded.

g. Emphasis in Scoring - Both time and accuracy are equally important.

7. Observation of Clients

a. Work Performance - No specific performance factors are mentioned in the manual.

b. Work Behaviors - No work behaviors are defined and the manual does not contain work behaviors to be observed. This is inconsistent with literature stating that one application of these tasks is "The development of appropriate work behavior and acceptable work habits."

c. Recording System - No recording system is used. There is a space for comments on the Work Performance Data Sheet.

d. Frequency of Observation - This is not specified.

8. Reporting

a. Forms - The only form used is the Work Performance Data Sheet which contains columns for the specific task, time, MTM norms, baseline, goal, and comments.

b. Final Report Format - Because the WSD Package is a training device and not a work sample, no final report format is available.

9. Utility

a. Vocational Exploration
b. Vocational Recommendations
c. Counselor Utilization

According to the developers, the system is used as a "prevocational training and assessment program" to teach the basic skills discrimination, assembly, and packaging.

10. Training in the System

a. Training Required - Training is required prior to use.

b. Training Available - In-service training is provided by the developer when the system is installed.

c. Duration - The session lasts one day.

d. Follow-up - Training and follow-up are included in the price of the package.

11. Technical Considerations

a. Norm Base - MTM norms are available on all the assembly and packaging jobs.

b. Reliability - No studies are reported in the manual.

c. Validity - No studies are reported in the manual.

12. Reviewer's Summary and Comments

The introduction to the Work Skill Development Package contains the following statement ". . . the WSD Package is not a work evaluation system. It is not intended to evaluate or predict vocational readiness through a single administration of tasks." The system is a prevocational training program intended to be part of a skill and "behavior" acquisition process. The WSD's major purpose is as a training device for mentally retarded, mentally ill, and developmentally disabled persons. The logical progression in complexity and working with different materials makes the system easy to use with moderate and severely mentally retarded persons. However, if the WSD Package is to be used as a training device, it needs to have an explanation on how to record, plot, and use the results from several administrations.

13. Address

Attainment Co.
P.O. Box 103
Oregon, Wisconsin 53575

14. Cost

Current price is $2,995.00; this includes shipping, delivery, in-service, and replacement parts.

15. References

None